

# SEQUENCE LISTING

<110> The Procter & Gamble Company  
Isfort, Robert  
Sheldon, Russell

<120> Methods for Identifying Compounds for Regulating Muscle Mass or  
Function Using Corticotropin Releasing Factor Receptors

<130> 8448R

<140> Not Yet Assigned

<141> 2003-08-27

<150> US 09/799,978

<151> 2001-03-06

<160> 44

<170> PatentIn version 3.0

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His Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu Leu Gly Leu Asn
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Pro Val Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser Leu Ser Leu
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Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp  
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Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr	
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Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Val Ser Arg Val	
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Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe	
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Arg Lys Arg Trp His Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg	
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Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe	
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Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu		
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Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser		
145	150	155
Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met		
165	170	175
Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr		
180	185	190
Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly		
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Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp		
210	215	220
Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe		
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Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu		
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Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr		
260	265	270



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Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
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Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
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Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
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Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu  
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Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser  
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Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys  
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Gln His Cys Glu Ser Leu Ser Leu Ala Ser Asn Ile Ser Asp Asn Gly		
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Val	Ala	Leu	Leu	Val	Ala	Phe	Val	Leu	Phe	Leu	Arg	Leu	Arg	Ser	Ile	
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Tyr	Leu	His	Thr	Ala	Ile	Val	Leu	Thr	Tyr	Ser	Thr	Asp	Arg	Leu	Arg	
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Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys His Ser Ile			
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Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg			
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Ile Leu Asn Glu Glu Lys Lys Ser Lys Val His Tyr His Val Ala Val			
65	70	75	80
Ile Ile Asn Tyr Leu Gly His Cys Ile Ser Leu Val Ala Leu Leu Val			
	85	90	95
Ala Phe Val Leu Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn			
	100	105	110
Ile Ile His Trp Asn Leu Ile Ser Ala Phe Ile Leu Arg Asn Ala Thr			
	115	120	125

Trp Phe Val Val Gln Leu Thr Met Ser Pro Glu Val His Gln Ser Asn  
 130 135 140

Val Gly Trp Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His Val  
 145 150 155 160

Thr Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr Ala  
 165 170 175

Ile Val Leu Thr Tyr Ser Thr Asp Arg Leu Arg Lys Trp Met Phe Ile  
 180 185 190

Cys Ile Gly Trp Gly Val Pro Phe Pro Ile Ile Val Ala Trp Ala Ile  
 195 200 205

Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg Pro  
 210 215 220

Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val Leu  
 225 230 235 240

Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr  
 245 250 255

Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala  
 260 265 270

Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met  
 275 280 285

Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Val Ser Arg Val Val Phe  
 290 295 300

Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe Val Ser  
 305 310 315 320

Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Ile Arg Lys  
 325 330 335

Arg Trp His Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg Val Ala  
 340 345 350

Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe His Ser  
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Ile Lys Gln Ser Thr Ala Val  
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Met Gly Gly His Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu Leu
1          5          10          15

ggg ctg aac ccc gtc tct gcc tcc ctc cag gac cag cac tgc gag agc      96
Gly Leu Asn Pro Val Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser
          20          25          30

ctg tcc ctg gcc agc aac atc tca gga ctg cag tgc aac gca tcc gtg      144
Leu Ser Leu Ala Ser Asn Ile Ser Gly Leu Gln Cys Asn Ala Ser Val
          35          40          45

gac ctc att ggc acc tgc tgg ccc cgc agc cct gcg ggg cag cta gtg      192
Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val
          50          55          60

gtt cgg ccc tgc cct gcc ttt ttc tat ggt gtc cgc tac aat acc aca      240
Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr
65          70          75          80

aac aat ggc tac cgg gag tgc ctg gcc aat ggc agc tgg gcc gcc cgc      288
Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg
          85          90          95

gtg aat tac tcc gag tgc cag gag atc ctc aat gag gag aaa aaa agc      336
Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser
          100          105          110

aag gtg cac tac cat gtc gca gtc atc atc aac tac ctg ggc cac tgt      384
Lys Val His Tyr His Val Ala Val Ile Ile Asn Tyr Leu Gly His Cys
          115          120          125

atc tcc ctg gtg gcc ctc ctg gtg gcc ttt gtc ctc ttt ctg cgg ctc      432
Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu
          130          135          140

agg agc atc cgg tgc ctg cga aac atc atc cac tgg aac ctc atc tcc      480
Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser
145          150          155          160

gcc ttc atc ctg cgc aac gcc acc tgg ttc gtg gtc cag cta acc atg      528
Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met
          165          170          175

agc ccc gag gtc cac cag agc aac gtg ggc tgg tgc agg ttg gtg aca      576
Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr
          180          185          190

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gcc gcc tac aac tac ttc cat gtg acc aac ttc ttc tgg atg ttc ggc Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly 195 200 205	624
gag ggc tgc tac ctg cac aca gcc atc gtg ctc acc tac tcc act gac Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp 210 215 220	672
cgg ctg cgc aaa tgg atg ttc atc tgc att ggc tgg ggt gtg ccc ttc Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe 225 230 235 240	720
ccc atc att gtg gcc tgg gcc att ggg aag ctg tac tac gac aat gag Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu 245 250 255	768
aag tgc tgg ttt ggc aaa agg cct ggg gtg tac acc gac tac atc tac Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr 260 265 270	816
cag ggc ccc atg atc ctg gtc ctg ctg atc aat ttc atc ttc ctt ttc Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe 275 280 285	864
aac atc gtc cgc atc ctc atg acc aag ctc cgg gca tcc acc acg tct Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser 290 295 300	912
gag acc att cag tac agg aag gct gtg aaa gcc act ctg gtg ctg ctg Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu 305 310 315 320	960
ccc ctc ctg ggc atc acc tac atg ctg ttc ttc gtc aat ccc ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu 325 330 335	1008
gat gag gtc tcc cgg gtc gtc ttc atc tac ttc aac tcc ttc ctg gaa Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu 340 345 350	1056
tcc ttc cag gtc cgt tct gcc atc cgg aag agg tgg cac cgg tgg cag Ser Phe Gln Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln 355 360 365	1104
gac aag cac tcg atc cgt gcc cga gtg gcc cgt gcc atg tcc atc ccc Asp Lys His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro 370 375 380	1152
acc tcc cca acc cgt gtc agc ttt cac agc atc aag cag tcc aca gca Thr Ser Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala 385 390 395 400	1200
gtc tga Val	1206

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<213> Homo sapiens

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Met Gly Gly His Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu Leu  
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Gly Leu Asn Pro Val Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser  
20 25 30

Leu Ser Leu Ala Ser Asn Ile Ser Gly Leu Gln Cys Asn Ala Ser Val  
35 40 45

Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val  
50 55 60

Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr  
65 70 75 80

Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg  
85 90 95

Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser  
100 105 110

Lys Val His Tyr His Val Ala Val Ile Ile Asn Tyr Leu Gly His Cys  
115 120 125

Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu  
130 135 140

Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser  
145 150 155 160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met  
165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr  
180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly  
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp  
210 215 220

Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe





gcg ctg gct gaa gag ctg ctc ttg gac ggc tgg ggg cca ccc ctg gac Ala Leu Ala Glu Glu Leu Leu Leu Asp Gly Trp Gly Pro Pro Leu Asp 20 25 30	96
ccc gag ggt ccc tac tcc tac tgc aac acg acc ttg gac cag atc gga Pro Glu Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly 35 40 45	144
acg tgc tgg ccc cgc agc gct gcc gga gcc ctc gtg gag agg ccg tgc Thr Cys Trp Pro Arg Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys 50 55 60	192
ccc gag tac ttc aac ggc gtc aag tac aac acg acc cgg aat gcc tat Pro Glu Tyr Phe Asn Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr 65 70 75 80	240
cga gaa tgc ttg gag aat ggg acg tgg gcc tca aag atc aac tac tca Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser 85 90 95	288
cag tgt gag ccc att ttg gat gac aag cag agg aag tat gac ctg cac Gln Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His 100 105 110	336
tac cgc atc gcc ctt gtc gtc aac tac ctg ggc cac tgc gta tct gtg Tyr Arg Ile Ala Leu Val Val Asn Tyr Leu Gly His Cys Val Ser Val 115 120 125	384
gca gcc ctg gtg gcc gcc ttc ctg ctt ttc ctg gcc ctg cgg agc att Ala Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile 130 135 140	432
cgc tgt ctg cgg aat gtg att cac tgg aac ctc atc acc acc ttt atc Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile 145 150 155 160	480
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cac gag agc aat gag gtc tgg tgc cac tgc atc acc acc atc ttc aac His Glu Ser Asn Glu Val Trp Cys His Cys Ile Thr Thr Ile Phe Asn 180 185 190	576
tac ttc gtg gtg acc aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr 195 200 205	624
ctg cac acg gcc att gtc atg acc tac tcc act gag cgc ctg cgc aag Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys 210 215 220	672
tgc ctc ttc ctc ttc atc gga tgg tgc atc ccc ttc ccc atc atc gtc Cys Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val 225 230 235 240	720
gcc tgg gcc atc ggc aag ctc tac tat gag aat gaa cag tgc tgg ttt Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe 245 250 255	768
ggc aag gag cct ggc gac ctg gtg gac tac atc tac caa ggc ccc atc	816

Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile	
260 265 270	
att ctc gtg ctc ctg atc aat ttc gta ttt ctg ttc aac atc gtc agg	864
Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg	
275 280 285	
atc cta atg aca aag tta cgc gcg tcc acc aca tcc gag aca atc cag	912
Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln	
290 295 300	
tac agg aag gca gtg aag gcc acc ctg gtg ctc ctg ccc ctc ctg ggc	960
Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly	
305 310 315 320	
atc acc tac atg ctc ttc ttc gtc aat ccc ggg gag gac gac ctg tca	1008
Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser	
325 330 335	
cag atc atg ttc atc tat ttc aac tcc ttc ctg cag tcg ttc cag ggt	1056
Gln Ile Met Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly	
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ttc ttc gtg tct gtc ttc tac tgc ttc ttc aat gga gag gtg cgc tca	1104
Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser	
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gcc gtg agg aag agg tgg cac cgc tgg cag gac cat cac tcc ctt cga	1152
Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser Leu Arg	
370 375 380	
gtc ccc atg gcc cgg gcc atg tcc atc cct aca tca ccc aca cgg atc	1200
Val Pro Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile	
385 390 395 400	
agc ttc cac agc atc aag cag acg gcc gct gtg tga cccctcggtc	1246
Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val	
405 410	
gcccacctgc acagctcccc tgctcctctc caccttcttc ctctgggttc tctgtgctgg	1306
gcaggctctc gtggggcagg agatgggagg ggagagacca gctctccagc ctggcaggaa	1366
agagggggtg cggcagccaa gggggactgc aagggacagg gatgagtggg ggccaccagg	1426
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 tgtgaaataa accatgcctc ttgg 2110

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Pro Glu Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly  
 35 40 45

Thr Cys Trp Pro Arg Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys  
 50 55 60

Pro Glu Tyr Phe Asn Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr  
 65 70 75 80

Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser  
 85 90 95

Gln Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His  
 100 105 110

Tyr Arg Ile Ala Leu Val Val Asn Tyr Leu Gly His Cys Val Ser Val  
 115 120 125

Ala Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile  
 130 135 140

Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile  
 145 150 155 160

Leu Arg Asn Val Met Trp Phe Leu Leu Gln Leu Val Asp His Glu Val  
 165 170 175

His Glu Ser Asn Glu Val Trp Cys His Cys Ile Thr Thr Ile Phe Asn

180 185 190  
 Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr  
 195 200 205  
 Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys  
 210 215 220  
 Cys Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val  
 225 230 235 240  
 Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe  
 245 250 255  
 Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile  
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 275 280 285  
 Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln  
 290 295 300  
 Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly  
 305 310 315 320  
 Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser  
 325 330 335  
 Gln Ile Met Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly  
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 Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser  
 355 360 365  
 Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser Leu Arg  
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 Val Pro Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile  
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 Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val  
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 <222> (71)..(1387)

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      Met Arg Gly Pro Ser Gly Pro Pro Gly Leu Leu Tyr Val
      1             5             10

cca cac ctc ctc ctc tgc ctg ctc tgc ctc ctc cca ccg ccg ctc caa      157
Pro His Leu Leu Leu Cys Leu Leu Cys Leu Leu Pro Pro Pro Leu Gln
      15             20             25

tac gca gcc ggg cag agc cag atg ccc aaa gac cag ccc ctg tgg gca      205
Tyr Ala Ala Gly Gln Ser Gln Met Pro Lys Asp Gln Pro Leu Trp Ala
      30             35             40             45

ctt ctg gag cag tac tgc cac acc atc atg acc ctc acc aac ctc tca      253
Leu Leu Glu Gln Tyr Cys His Thr Ile Met Thr Leu Thr Asn Leu Ser
      50             55             60

ggg ccc tac tcc tac tgc aac acg acc ttg gac cag atc gga acg tgc      301
Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys
      65             70             75

tgg ccc cgc agc gct gcc gga gcc ctc gtg gag agg ccg tgc ccc gag      349
Trp Pro Arg Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys Pro Glu
      80             85             90

tac ttc aac ggc gtc aag tac aac acg acc cgg aat gcc tat cga gaa      397
Tyr Phe Asn Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr Arg Glu
      95             100             105

tgc ttg gag aat ggg acg tgg gcc tca aag atc aac tac tca cag tgt      445
Cys Leu Glu Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser Gln Cys
      110             115             120             125

gag ccc att ttg gat gac aag cag agg aag tat gac ctg cac tac cgc      493
Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg
      130             135             140

atc gcc ctt gtc gtc aac tac ctg ggc cac tgc gta tct gtg gca gcc      541
Ile Ala Leu Val Val Asn Tyr Leu Gly His Cys Val Ser Val Ala Ala
      145             150             155

ctg gtg gcc gcc ttc ctg ctt ttc ctg gcc ctg cgg agc att cgc tgt      589
Leu Val Ala Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile Arg Cys
      160             165             170

ctg cgg aat gtg att cac tgg aac ctc atc acc acc ttt atc ctg cga      637
Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg
      175             180             185

aat gtc atg tgg ttc ctg ctg cag ctc gtt gac cat gaa gtg cac gag      685
Asn Val Met Trp Phe Leu Leu Gln Leu Val Asp His Glu Val His Glu
      190             195             200             205

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gtg gtg acc aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac ctg cac Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His 225 230 235	781
acg gcc att gtc atg acc tac tcc act gag cgc ctg cgc aag tgc ctc Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys Cys Leu 240 245 250	829
ttc ctc ttc atc gga tgg tgc atc ccc ttc ccc atc atc gtc gcc tgg Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp 255 260 265	877
gcc atc ggc aag ctc tac tat gag aat gaa cag tgc tgg ttt ggc aag Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys 270 275 280 285	925
gag cct ggc gac ctg gtg gac tac atc tac caa ggc ccc atc att ctc Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu 290 295 300	973
gtg ctc ctg atc aat ttc gta ttt ctg ttc aac atc gtc agg atc cta Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu 305 310 315	1021
atg aca aag tta cgc gcg tcc acc aca tcc gag aca atc cag tac agg Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg 320 325 330	1069
aag gca gtg aag gcc acc ctg gtg ctc ctg ccc ctc ctg ggc atc acc Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr 335 340 345	1117
tac atg ctc ttc ttc gtc aat ccc ggg gag gac gac ctg tca cag atc Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile 350 355 360 365	1165
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gtg tct gtc ttc tac tgc ttc ttc aat gga gag gtg cgc tca gcc gtg Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Val 385 390 395	1261
agg aag agg tgg cac cgc tgg cag gac cat cac tcc ctt cga gtc ccc Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser Leu Arg Val Pro 400 405 410	1309
atg gcc cgg gcc atg tcc atc cct aca tca ccc aca cgg atc agc ttc Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe 415 420 425	1357
cac agc atc aag cag acg gcc gct gtg tga cccctcggtc gccacctgc His Ser Ile Lys Gln Thr Ala Ala Val 430 435	1407

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Gly Gln Ser Gln Met Pro Lys Asp Gln Pro Leu Trp Ala Leu Leu Glu  
 35 40 45

Gln Tyr Cys His Thr Ile Met Thr Leu Thr Asn Leu Ser Gly Pro Tyr  
 50 55 60

Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Arg  
 65 70 75 80

Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn  
 85 90 95

Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu  
 100 105 110

Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser Gln Cys Glu Pro Ile  
 115 120 125

Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu  
 130 135 140

Val Val Asn Tyr Leu Gly His Cys Val Ser Val Ala Ala Leu Val Ala  
 145 150 155 160

Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile Arg Cys Leu Arg Asn  
 165 170 175

Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Val Met

180 185 190  
 Trp Phe Leu Leu Gln Leu Val Asp His Glu Val His Glu Ser Asn Glu  
 195 200 205  
 Val Trp Cys Arg Cys Ile Thr Thr Ile Phe Asn Tyr Phe Val Val Thr  
 210 215 220  
 Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile  
 225 230 235 240  
 Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys Cys Leu Phe Leu Phe  
 245 250 255  
 Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp Ala Ile Gly  
 260 265 270  
 Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly  
 275 280 285  
 Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu Val Leu Leu  
 290 295 300  
 Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys  
 305 310 315 320  
 Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val  
 325 330 335  
 Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu  
 340 345 350  
 Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Met Phe Ile  
 355 360 365  
 Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val  
 370 375 380  
 Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg  
 385 390 395 400  
 Trp His Arg Trp Gln Asp His His Ser Leu Arg Val Pro Met Ala Arg  
 405 410 415  
 Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile  
 420 425 430



Lys Gln Thr Ala Ala Val  
435

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<220>  
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<222> (152)..(1345)

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caacacacac acatatgccca gggtttgtca a atg gga aga gag cct tgg cct      172
                               Met Gly Arg Glu Pro Trp Pro
                               1                               5

gaa gac agg gac ctg ggc ttt cct cag ctc ttc tgc caa ggt ccc tac      220
Glu Asp Arg Asp Leu Gly Phe Pro Gln Leu Phe Cys Gln Gly Pro Tyr
                               10                               15                               20

tcc tac tgc aac acg acc ttg gac cag atc gga acg tgc tgg ccc cgc      268
Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Arg
                               25                               30                               35

agc gct gcc gga gcc ctc gtg gag agg ccg tgc ccc gag tac ttc aac      316
Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn
40                               45                               50                               55

ggc gtc aag tac aac acg acc cgg aat gcc tat cga gaa tgc ttg gag      364
Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu
                               60                               65                               70

aat ggg acg tgg gcc tca aag atc aac tac tca cag tgt gag ccc att      412
Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser Gln Cys Glu Pro Ile
                               75                               80                               85

ttg gat gac aag cag agg aag tat gac ctg cac tac cgc atc gcc ctt      460
Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu
                               90                               95                               100

gtc gtc aac tac ctg ggc cac tgc gta tct gtg gca gcc ctg gtg gcc      508
Val Val Asn Tyr Leu Gly His Cys Val Ser Val Ala Ala Leu Val Ala
105                               110                               115

gcc ttc ctg ctt ttc ctg gcc ctg cgg agc att cgc tgt ctg cgg aat      556
Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile Arg Cys Leu Arg Asn
120                               125                               130                               135

gtg att cac tgg aac ctc atc acc acc ttt atc ctg cga aat gtc atg      604
Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Val Met
                               140                               145                               150

tgg ttc ctg ctg cag ctc gtt gac cat gaa gtg cac gag agc aat gag      652

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Trp Phe Leu Leu Gln Leu Val Asp His Glu Val His Glu Ser Asn Glu	155	160	165	
gtc tgg tgc cgc tgc atc acc acc atc ttc aac tac ttc gtg gtg acc				700
Val Trp Cys Arg Cys Ile Thr Thr Ile Phe Asn Tyr Phe Val Val Thr	170	175	180	
aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac ctg cac acg gcc att				748
Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile	185	190	195	
gtc atg acc tac tcc act gag cgc ctg cgc aag tgc ctc ttc ctc ttc				796
Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys Cys Leu Phe Leu Phe	200	205	210	
atc gga tgg tgc atc ccc ttc ccc atc atc gtc gcc tgg gcc atc gcc				844
Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp Ala Ile Gly	220		225	
aag ctc tac tat gag aat gaa cag tgc tgg ttt ggc aag gag cct gcc				892
Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly	235	240	245	
gac ctg gtg gac tac atc tac caa ggc ccc atc att ctc gtg ctc ctg				940
Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu Val Leu Leu	250	255	260	
atc aat ttc gta ttt ctg ttc aac atc gtc agg atc cta atg aca aag				988
Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys	265	270	275	
tta cgc gcg tcc acc aca tcc gag aca atc cag tac agg aag gca gtg				1036
Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val	280	285	290	
aag gcc acc ctg gtg ctc ctg ccc ctc ctg ggc atc acc tac atg ctc				1084
Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu	300	305	310	
ttc ttc gtc aat ccc ggg gag gac gac ctg tca cag atc atg ttc atc				1132
Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Met Phe Ile	315	320	325	
tat ttc aac tcc ttc ctg cag tgc ttc cag ggt ttc ttc gtg tct gtc				1180
Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val	330	335	340	
ttc tac tgc ttc ttc aat gga gag gtg cgc tca gcc gtg agg aag agg				1228
Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg	345	350	355	
tgg cac cgc tgg cag gac cat cac tcc ctt cga gtc ccc atg gcc cgg				1276
Trp His Arg Trp Gln Asp His His Ser Leu Arg Val Pro Met Ala Arg	360	365	370	
gcc atg tcc atc cct aca tca ccc aca cgg atc agc ttc cac agc atc				1324
Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile	380	385	390	
aag cag acg gcc gct gtg tga cccctcggtc gccacctgc acagctcccc				1375
Lys Gln Thr Ala Ala Val				

395

tgtcctcctc caccttcttc ctctgggttc tctgtgctgg gcaggctctc gtggggcagg 1435  
 agatgggagg ggagagacca gctctccagc ctggcaggaa agaggggggtg cggcagccaa 1495  
 gggggactgc aaggacagc gatgagtggg ggccaccagg ctcagcgcaa gaggaagcag 1555  
 agg 1558

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 <212> PRT  
 <213> Homo sapiens

<400> 14

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Leu Phe Cys Gln Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln  
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Ile Gly Thr Cys Trp Pro Arg Ser Ala Ala Gly Ala Leu Val Glu Arg  
 35 40 45

Pro Cys Pro Glu Tyr Phe Asn Gly Val Lys Tyr Asn Thr Thr Arg Asn  
 50 55 60

Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Lys Ile Asn  
 65 70 75 80

Tyr Ser Gln Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp  
 85 90 95

Leu His Tyr Arg Ile Ala Leu Val Val Asn Tyr Leu Gly His Cys Val  
 100 105 110

Ser Val Ala Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Ala Leu Arg  
 115 120 125

Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr  
 130 135 140

Phe Ile Leu Arg Asn Val Met Trp Phe Leu Leu Gln Leu Val Asp His  
 145 150 155 160

Glu Val His Glu Ser Asn Glu Val Trp Cys Arg Cys Ile Thr Thr Ile  
 165 170 175

Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly  
180 185 190

Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu  
195 200 205

Arg Lys Cys Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile  
210 215 220

Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys  
225 230 235 240

Trp Phe Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly  
245 250 255

Pro Ile Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile  
260 265 270

Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr  
275 280 285

Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu  
290 295 300

Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp  
305 310 315 320

Leu Ser Gln Ile Met Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe  
325 330 335

Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val  
340 345 350

Arg Ser Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser  
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Leu Arg Val Pro Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr  
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Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val  
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<213> Rattus norvegicus

<220>  
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 <222> (80)..(1327)

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 Met Gly Arg Arg Pro Gln Leu Arg Leu Val Lys  
 1 5 10  
 gcc ctt ctc ctt ctg ggg ctg aac cct gtg tcc acc tcc ctt cag gat 160  
 Ala Leu Leu Leu Leu Gly Leu Asn Pro Val Ser Thr Ser Leu Gln Asp  
 15 20 25  
 cag cgc tgt gag aac ctg tcc ctg acc agc aat gtt tct ggc ctg cag 208  
 Gln Arg Cys Glu Asn Leu Ser Leu Thr Ser Asn Val Ser Gly Leu Gln  
 30 35 40  
 tgc aat gca tcc gtg gac ctc att ggc acc tgc tgg ccc cgg agc cct 256  
 Cys Asn Ala Ser Val Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro  
 45 50 55  
 gcg ggc cag ttg gtg gtc cga ccc tgc cct gcc ttt ttc tac ggt gtc 304  
 Ala Gly Gln Leu Val Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val  
 60 65 70 75  
 cgc tac aac acg aca aac aat ggc tac cgg gag tgc ctg gcc aac ggc 352  
 Arg Tyr Asn Thr Thr Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly  
 80 85 90  
 agc tgg gca gcc cgt gtg aat tat tct gag tgc cag gag att ctc aac 400  
 Ser Trp Ala Ala Arg Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn  
 95 100 105  
 gaa gag aag aag agc aaa gta cac tac cat gtt gca gtc atc atc aac 448  
 Glu Glu Lys Lys Ser Lys Val His Tyr His Val Ala Val Ile Ile Asn  
 110 115 120  
 tac ctg ggt cac tgc atc tcc ctg gta gcc ctc ctg gtg gcc ttt gtc 496  
 Tyr Leu Gly His Cys Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val  
 125 130 135  
 ctc ttc ttg cgg ctc agg agc atc cgg tgc ctg aga aac atc atc cac 544  
 Leu Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His  
 140 145 150 155  
 tgg aac ctc atc tcg gct ttc atc cta cgc aac gcc acg tgg ttt gtg 592  
 Trp Asn Leu Ile Ser Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val  
 160 165 170  
 gtc cag ctc acc gtg agc ccc gag gtg cac cag agc aat gtg gcc tgg 640  
 Val Gln Leu Thr Val Ser Pro Glu Val His Gln Ser Asn Val Ala Trp  
 175 180 185  
 tgt agg ttg gtg aca gcc gcc tac aat tac ttc cat gta acc aac ttc 688  
 Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe  
 190 195 200  
 ttc tgg atg ttc ggt gag ggc tgc tac ctg cac aca gcc att gtg ctc 736

Phe	Trp	Met	Phe	Gly	Glu	Gly	Cys	Tyr	Leu	His	Thr	Ala	Ile	Val	Leu		
205						210					215						
acg	tac	tcc	acc	gac	cgt	ctg	cgc	aag	tgg	atg	ttc	gtc	tgc	att	ggc	784	
Thr	Tyr	Ser	Thr	Asp	Arg	Leu	Arg	Lys	Trp	Met	Phe	Val	Cys	Ile	Gly		
220					225					230					235		
tgg	ggt	gta	cct	ttc	ccc	atc	att	gtg	gct	tgg	gcc	att	ggg	aag	ctg	832	
Trp	Gly	Val	Pro	Phe	Pro	Ile	Ile	Val	Ala	Trp	Ala	Ile	Gly	Lys	Leu		
				240					245					250			
cac	tac	gac	aat	gaa	aag	tgc	tgg	ttt	ggc	aaa	cgt	cct	ggg	gta	tac	880	
His	Tyr	Asp	Asn	Glu	Lys	Cys	Trp	Phe	Gly	Lys	Arg	Pro	Gly	Val	Tyr		
			255					260					265				
act	gac	tac	atc	tac	cag	ggc	ccc	atg	atc	ctg	gtc	ctg	ctg	atc	aac	928	
Thr	Asp	Tyr	Ile	Tyr	Gln	Gly	Pro	Met	Ile	Leu	Val	Leu	Leu	Ile	Asn		
		270					275					280					
ttt	atc	ttt	ctc	ttc	aac	att	gtc	cgc	atc	ctc	atg	acc	aaa	ctc	cgg	976	
Phe	Ile	Phe	Leu	Phe	Asn	Ile	Val	Arg	Ile	Leu	Met	Thr	Lys	Leu	Arg		
285						290					295						
gca	tcc	act	aca	tct	gag	acc	att	cag	tac	agg	aag	gct	gtg	aag	gcc	1024	
Ala	Ser	Thr	Thr	Ser	Glu	Thr	Ile	Gln	Tyr	Arg	Lys	Ala	Val	Lys	Ala		
300					305					310					315		
act	ctg	gtg	ctc	ctg	ccc	ctt	ctg	ggc	atc	acc	tac	atg	ttg	ttc	ttc	1072	
Thr	Leu	Val	Leu	Leu	Pro	Leu	Leu	Gly	Ile	Thr	Tyr	Met	Leu	Phe	Phe		
				320					325					330			
gtc	aac	cct	gga	gag	gac	gag	gtc	tcc	agg	gtc	gtc	ttc	atc	tac	ttc	1120	
Val	Asn	Pro	Gly	Glu	Asp	Glu	Val	Ser	Arg	Val	Val	Phe	Ile	Tyr	Phe		
			335					340					345				
aac	tct	ttt	ctg	gag	tcc	ttt	cag	ggc	ttc	ttt	gtg	tct	gtg	ttc	tac	1168	
Asn	Ser	Phe	Leu	Glu	Ser	Phe	Gln	Gly	Phe	Phe	Val	Ser	Val	Phe	Tyr		
		350					355					360					
tgt	ttt	ctg	aac	agt	gag	gtc	cgc	tcc	gct	atc	cgg	aag	agg	tgg	cgt	1216	
Cys	Phe	Leu	Asn	Ser	Glu	Val	Arg	Ser	Ala	Ile	Arg	Lys	Arg	Trp	Arg		
	365					370					375						
cgg	tgg	cag	gac	aag	cac	tcc	atc	aga	gcc	cga	gtg	gcc	cga	gct	atg	1264	
Arg	Trp	Gln	Asp	Lys	His	Ser	Ile	Arg	Ala	Arg	Val	Ala	Arg	Ala	Met		
380					385				390					395			
tcc	atc	ccc	acc	tcc	ccg	acc	aga	gtc	agc	ttt	cac	agc	atc	aag	cag	1312	
Ser	Ile	Pro	Thr	Ser	Pro	Thr	Arg	Val	Ser	Phe	His	Ser	Ile	Lys	Gln		
				400					405					410			
tcc	aca	gca	gtg	tga	gctccaggcc	acagagcagc	ccccaagacc	tgaggccggg								1367	
Ser	Thr	Ala	Val														
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gagatgatgc	aagctcactg	acgagccagt	ctgcagacgc	aagc												1411	
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<213> Rattus norvegicus

<400> 16

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Leu Ser Leu Thr Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val  
35 40 45

Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val  
50 55 60

Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr  
65 70 75 80

Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg  
85 90 95

Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser  
100 105 110

Lys Val His Tyr His Val Ala Val Ile Ile Asn Tyr Leu Gly His Cys  
115 120 125

Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu  
130 135 140

Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser  
145 150 155 160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Val  
165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Ala Trp Cys Arg Leu Val Thr  
180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly  
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp  
210 215 220

Arg Leu Arg Lys Trp Met Phe Val Cys Ile Gly Trp Gly Val Pro Phe

225                      230                      235                      240  
 Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu His Tyr Asp Asn Glu  
                                  245                                   250                                   255  
 Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr  
                                  260                                   265                                   270  
 Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe  
                                  275                                   280                                   285  
 Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
                                  290                                   295                                   300  
 Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
                                  305                                   310                                   315                                   320  
 Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
                                  325                                   330                                   335  
 Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu  
                                  340                                   345                                   350  
 Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser  
                                  355                                   360                                   365  
 Glu Val Arg Ser Ala Ile Arg Lys Arg Trp Arg Arg Trp Gln Asp Lys  
                                  370                                   375                                   380  
 His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
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 Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala Val  
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 <213> Rattus norvegicus

<220>  
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 <222> (216)..(1451)

<400> 17  
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cgctgcactc tctggtggct ccgcgtcgcg ccaggtccct cgcagccacg cggggcgcg	180
actcccactc ccaacgcgcg cggtccgga ggcga atg gac gcg gcg ctg ctc	233
Met Asp Ala Ala Leu Leu	
1 5	
ctc agc ctg ctg gag gcc aac tgc agc ctg gca ctg gcc gaa gag ctg	281
Leu Ser Leu Leu Glu Ala Asn Cys Ser Leu Ala Leu Ala Glu Glu Leu	
10 15 20	
ctt ttg gac ggc tgg gga gag ccc ccg gac ccc gaa ggt ccc tac tcc	329
Leu Leu Asp Gly Trp Gly Glu Pro Pro Asp Pro Glu Gly Pro Tyr Ser	
25 30 35	
tac tgc aac acg acc ttg gac cag atc ggg acc tgc tgg ccc cag agc	377
Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser	
40 45 50	
gcg cct gga gcc cta gtg gag aga cca tgc ccc gaa tac ttc aac ggc	425
Ala Pro Gly Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly	
55 60 65 70	
atc aag tac aac acg acc cgg aat gcc tac aga gaa tgc ctg gag aat	473
Ile Lys Tyr Asn Thr Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn	
75 80 85	
ggg acc tgg gcc tca agg atc aac tac tca cac tgt gaa ccc att ttg	521
Gly Thr Trp Ala Ser Arg Ile Asn Tyr Ser His Cys Glu Pro Ile Leu	
90 95 100	
gat gac aag cag agg aag tat gac ctg cat tac cga atc gcc ctc atc	569
Asp Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu Ile	
105 110 115	
atc aac tac ctg ggc cac tgt gtt tcc gtg gtg gcc ctg gtg gct gct	617
Ile Asn Tyr Leu Gly His Cys Val Ser Val Val Ala Leu Val Ala Ala	
120 125 130	
ttc ctg ctt ttc cta gtg ctg cgg agt atc cgc tgc ctg cgg aat gtg	665
Phe Leu Leu Phe Leu Val Leu Arg Ser Ile Arg Cys Leu Arg Asn Val	
135 140 145 150	
atc cac tgg aac ctc atc acc acc ttc atc ctg aga aac atc acg tgg	713
Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Thr Trp	
155 160 165	
ttc ctg ctg caa ctc atc gac cac gaa gtg cat gag ggc aat gag gtc	761
Phe Leu Leu Gln Leu Ile Asp His Glu Val His Glu Gly Asn Glu Val	
170 175 180	
tgg tgc cgc tgc gtc acc acc ata ttc aac tac ttt gtg gtc acc aac	809
Trp Cys Arg Cys Val Thr Thr Ile Phe Asn Tyr Phe Val Val Thr Asn	
185 190 195	
ttc ttc tgg atg ttt gtg gaa ggc tgc tac ctg cac acg gcc atc gtc	857
Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val	
200 205 210	
atg acg tac tcc acg gag cat ctg cgc aag tgg ctc ttc ctc ttc att	905
Met Thr Tyr Ser Thr Glu His Leu Arg Lys Trp Leu Phe Leu Phe Ile	
215 220 225 230	

gga tgg tgc ata ccc tgc cct atc att gtc gcc tgg gca gtt ggc aaa	953
Gly Trp Cys Ile Pro Cys Pro Ile Ile Val Ala Trp Ala Val Gly Lys	
235 240 245	
ctc tac tat gag aat gag cag tgc tgg ttt ggc aag gaa cct ggt gac	1001
Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly Asp	
250 255 260	
tta gtg gac tac atc tac cag ggc ccc atc atc ctc gtg ctc ctc atc	1049
Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu Val Leu Leu Ile	
265 270 275	
aat ttt gtg ttt ctg ttc aac atc gtc agg atc ctg atg aca aaa ctg	1097
Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu	
280 285 290	
cga gcc tcc acc aca tcc gag acc atc cag tac agg aag gca gtg aag	1145
Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys	
295 300 305 310	
gcc acc ctg gtc ctc ctc ccc ctg ttg ggc atc acc tac atg ctc ttc	1193
Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe	
315 320 325	
ttt gtc aat cct gga gag gac gac ctg tca cag att gtg ttc atc tac	1241
Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr	
330 335 340	
ttc aac tct ttc ctg cag tcc ttt cag ggt ttc ttt gtg tcc gtt ttc	1289
Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe	
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Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Leu Arg Lys Arg Trp	
360 365 370	
cac cgt tgg cag gac cac cac gcc ctc cga gtg cct gtg gcc cgg gcc	1385
His Arg Trp Gln Asp His His Ala Leu Arg Val Pro Val Ala Arg Ala	
375 380 385 390	
atg tcc att ccc aca tcg ccc acc agg atc agc ttc cac agc atc aag	1433
Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys	
395 400 405	
cag aca gct gcc gtg tga tccctgtca cccatctgcc cagcactcca	1481
Gln Thr Ala Ala Val	
410	
ccaccgaggc ggcttctca ttcttcacag ccttccctgg gtctctcttg ctacactgac	1541
ccttgggtgc aggagaaggg ggggtgatg aactctctg ccggaagaaa ggaaaactat	1601
gaaatggagg ctctgaaaga ccagg	1626

<210> 18  
 <211> 411  
 <212> PRT  
 <213> Rattus norvegicus

<400> 18

Met Asp Ala Ala Leu Leu Leu Ser Leu Leu Glu Ala Asn Cys Ser Leu  
1 5 10 15

Ala Leu Ala Glu Glu Leu Leu Leu Asp Gly Trp Gly Glu Pro Pro Asp  
20 25 30

Pro Glu Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly  
35 40 45

Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val Glu Arg Pro Cys  
50 55 60

Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr Arg Asn Ala Tyr  
65 70 75 80

Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg Ile Asn Tyr Ser  
85 90 95

His Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His  
100 105 110

Tyr Arg Ile Ala Leu Ile Ile Asn Tyr Leu Gly His Cys Val Ser Val  
115 120 125

Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val Leu Arg Ser Ile  
130 135 140

Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile  
145 150 155 160

Leu Arg Asn Ile Thr Trp Phe Leu Leu Gln Leu Ile Asp His Glu Val  
165 170 175

His Glu Gly Asn Glu Val Trp Cys Arg Cys Val Thr Thr Ile Phe Asn  
180 185 190

Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr  
195 200 205

Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu His Leu Arg Lys  
210 215 220

Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys Pro Ile Ile Val  
225 230 235 240

Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe  
245 250 255

Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile  
260 265 270

Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg  
275 280 285

Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln  
290 295 300

Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly  
305 310 315 320

Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser  
325 330 335

Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly  
340 345 350

Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser  
355 360 365

Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His His Ala Leu Arg  
370 375 380

Val Pro Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile  
385 390 395 400

Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val  
405 410

<210> 19  
<211> 1514  
<212> DNA  
<213> Rattus norvegicus

<220>  
<221> CDS  
<222> (44)..(1339)

<400> 19  
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Met Gly His Pro  
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ggc tct ctt ccc agt gca caa ctc ctc ctc tgc cta tac tct ctg ctc 103  
Gly Ser Leu Pro Ser Ala Gln Leu Leu Leu Cys Leu Tyr Ser Leu Leu

5	10	15	20	
cca ctg ctc cag gtg gcc caa cca ggc agg cca ctc cag gac cag ccc	Pro Leu Leu Gln Val Ala Gln Pro Gly Arg Pro Leu Gln Asp Gln Pro	151		
	25 30 35			
ctg tgg aca ctt ttg gag cag tac tgc cat agg acc aca act cgg aat	Leu Trp Thr Leu Leu Glu Gln Tyr Cys His Arg Thr Thr Thr Arg Asn	199		
	40 45 50			
ttt tca ggt ccc tac tcc tac tgc tac acg acc ttg gac cag atc ggg	Phe Ser Gly Pro Tyr Ser Tyr Cys Tyr Thr Thr Leu Asp Gln Ile Gly	247		
	55 60 65			
acc tgc tgg ccc cag agc gcg cct gga gcc cta gtg gag aga cca tgc	Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val Glu Arg Pro Cys	295		
	70 75 80			
ccc gaa tac ttc aac ggc atc aag tac aac acg acc cgg aat gcc tac	Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Arg Asn Ala Tyr	343		
	85 90 95 100			
aga gaa tgc ctg gag aat ggg acc tgg gcc tca agg atc aac tac tca	Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg Ile Asn Tyr Ser	391		
	105 110 115			
cac tgt gaa ccc att ttg gat gac aag cag agg aag tat gac ctg cat	His Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His	439		
	120 125 130			
tac cga atc gcc ctc atc atc aac tac ctg ggc cac tgt gtt tcc gtg	Tyr Arg Ile Ala Leu Ile Ile Asn Tyr Leu Gly His Cys Val Ser Val	487		
	135 140 145			
gtg gcc ctg gtg gct gct ttc ctg ctt ttc cta gtg ctg cgg agt atc	Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val Leu Arg Ser Ile	535		
	150 155 160			
cgc tgc ctg cgg aat gtg atc cac tgg aac ctc atc acc acc ttc atc	Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile	583		
	165 170 175 180			
ctg aga aac atc acg tgg ttc ctg ctg caa ctc atc gac cac gaa gtg	Leu Arg Asn Ile Thr Trp Phe Leu Leu Gln Leu Ile Asp His Glu Val	631		
	185 190 195			
cat gag ggc aat gag gtc tgg tgc cgc tgc gtc acc acc ata ttc aac	His Glu Gly Asn Glu Val Trp Cys Arg Cys Val Thr Thr Ile Phe Asn	679		
	200 205 210			
tac ttt gtg gtc acc aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac	Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr	727		
	215 220 225			
ctg cac acg gcc atc gtc atg acg tac tcc acg gag cat ctg cgc aag	Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu His Leu Arg Lys	775		
	230 235 240			
tgg ctc ttc ctc ttc att gga tgg tgc ata ccc tgc cct atc att gtc	Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys Pro Ile Ile Val	823		
	245 250 255 260			

gcc tgg gca gtt ggc aaa ctc tac tat gag aat gag cag tgc tgg ttt Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe 265 270 275	871
ggc aag gaa cct ggt gac tta gtg gac tac atc tac cag ggc ccc atc Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile 280 285 290	919
atc ctc gtg ctc ctc atc aat ttt gtg ttt ctg ttc aac atc gtc agg Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg 295 300 305	967
atc ctg atg aca aaa ctg cga gcc tcc acc aca tcc gag acc atc cag Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln 310 315 320	1015
tac agg aag gca gtg aag gcc aac ctg gtc ctc ctc ccc ctg ttg ggc Tyr Arg Lys Ala Val Lys Ala Asn Leu Val Leu Leu Pro Leu Leu Gly 325 330 335 340	1063
atc acc tac atg ctc ttc ttt gtc aat cct gga gag gac gac ctg tca Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser 345 350 355	1111
cag att gtg ttc atc tac ttc aac tct ttc ctg cag tcc ttt cag ggt Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly 360 365 370	1159
ttc ttt gtg tcc gtt ttc tac tgc ttc ttc aat gga gag gtg cgc tcc Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser 375 380 385	1207
gcc ctg aga aag cgg tgg cac cgt tgg cag gac cac cac gcc ctc cga Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His His Ala Leu Arg 390 395 400	1255
gtg cct gtg gcc cgg gcc atg tcc att ccc aca tcg ccc acc agg atc Val Pro Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile 405 410 415 420	1303
agc ttc cac agc atc aag cag aca gct gcc gtg tga tccccgtgca Ser Phe His Ser Ile Lys Gln Thr Ala Val 425 430	1349
cccatctgcc cagcaactcca ccaccgaggc ggcttctctca ttcttcacag ccttccttg	1409
gtcctccttg ctacactgac ccttggtgac aggagaagg ggggtggatg aactctcctg	1469
ccggaagaaa ggaaaactat gaaatggagg ctctgaaaga ccagg	1514

<210> 20  
 <211> 431  
 <212> PRT  
 <213> Rattus norvegicus

<400> 20

Met	Gly	His	Pro	Gly	Ser	Leu	Pro	Ser	Ala	Gln	Leu	Leu	Leu	Cys	Leu
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Tyr Ser Leu Leu Pro Leu Leu Gln Val Ala Gln Pro Gly Arg Pro Leu  
 20 25 30

Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln Tyr Cys His Arg Thr  
 35 40 45

Thr Thr Arg Asn Phe Ser Gly Pro Tyr Ser Tyr Cys Tyr Thr Thr Leu  
 50 55 60

Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val  
 65 70 75 80

Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr  
 85 90 95

Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg  
 100 105 110

Ile Asn Tyr Ser His Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys  
 115 120 125

Tyr Asp Leu His Tyr Arg Ile Ala Leu Ile Ile Asn Tyr Leu Gly His  
 130 135 140

Cys Val Ser Val Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val  
 145 150 155 160

Leu Arg Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile  
 165 170 175

Thr Thr Phe Ile Leu Arg Asn Ile Thr Trp Phe Leu Leu Gln Leu Ile  
 180 185 190

Asp His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys Val Thr  
 195 200 205

Thr Ile Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val  
 210 215 220

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu  
 225 230 235 240

His Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys  
 245 250 255

Pro Ile Ile Val Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu  
260 265 270

Gln Cys Trp Phe Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr  
275 280 285

Gln Gly Pro Ile Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe  
290 295 300

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
305 310 315 320

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Asn Leu Val Leu Leu  
325 330 335

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
340 345 350

Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln  
355 360 365

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly  
370 375 380

Glu Val Arg Ser Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His  
385 390 395 400

His Ala Leu Arg Val Pro Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
405 410 415

Pro Thr Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val  
420 425 430

<210> 21  
<211> 2273  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (32)..(1279)

<400> 21  
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Met Gly Gln Arg Pro Gln Leu  
1 5

cgg ctc gtg aag gcc ctt ctc ctt ctg ggg ctg aac ccc gtc tcc acc 100  
Arg Leu Val Lys Ala Leu Leu Leu Leu Gly Leu Asn Pro Val Ser Thr



10	15	20	
tcc ctc cag gat cag cag tgt gag agc ctg tcc ctg gcc agc aat gtc Ser Leu Gln Asp Gln Gln Cys Glu Ser Leu Ser Leu Ala Ser Asn Val 25 30 35			148
tct ggc ctg cag tgc aat gcc tcc gtg gac ctc att ggc acc tgc tgg Ser Gly Leu Gln Cys Asn Ala Ser Val Asp Leu Ile Gly Thr Cys Trp 40 45 50 55			196
ccc agg agc cct gca ggg cag ttg gtg gtt cgg ccc tgc cct gcc ttt Pro Arg Ser Pro Ala Gly Gln Leu Val Val Arg Pro Cys Pro Ala Phe 60 65 70			244
ttc tac ggt gtc cgc tac aac acc aca aac aat ggc tac cgg gaa tgc Phe Tyr Gly Val Arg Tyr Asn Thr Thr Asn Asn Gly Tyr Arg Glu Cys 75 80 85			292
ctg gcc aac ggc agc tgg gca gcc cgt gtg aat tat tct gag tgc cag Leu Ala Asn Gly Ser Trp Ala Ala Arg Val Asn Tyr Ser Glu Cys Gln 90 95 100			340
gag att ctc aac gaa gag aag aag agc aaa gtg cac tac cac att gcc Glu Ile Leu Asn Glu Glu Lys Lys Ser Lys Val His Tyr His Ile Ala 105 110 115			388
gtc atc atc aac tac ctg ggc cac tgc atc tcc ctg gtg gcc ctc ctg Val Ile Ile Asn Tyr Leu Gly His Cys Ile Ser Leu Val Ala Leu Leu 120 125 130 135			436
gtg gcc ttt gtc ctc ttc ctg cgg ctc agg agc atc cgg tgc ctg agg Val Ala Phe Val Leu Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg 140 145 150			484
aac atc atc cac tgg aac ctc atc tcg gct ttc atc ctg cgc aac gcc Asn Ile Ile His Trp Asn Leu Ile Ser Ala Phe Ile Leu Arg Asn Ala 155 160 165			532
acg tgg ttt gtg gtc cag ctc acc gtg agc ccc gag gtc cac cag agc Thr Trp Phe Val Val Gln Leu Thr Val Ser Pro Glu Val His Gln Ser 170 175 180			580
aac gtg gcc tgg tgc agg ctg gtg aca gcc gcc tac aac tac ttc cac Asn Val Ala Trp Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His 185 190 195			628
gta acc aac ttc ttc tgg atg ttc ggt gag ggc tgc tac ctg cac aca Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr 200 205 210 215			676
gcc atc gta ctc acg tac tcc acc gac cgt ctg cgc aag tgg atg ttc Ala Ile Val Leu Thr Tyr Ser Thr Asp Arg Leu Arg Lys Trp Met Phe 220 225 230			724
gtc tgc atc ggc tgg ggt gtg cct ttc ccc atc att gtg gct tgg gcc Val Cys Ile Gly Trp Gly Val Pro Phe Pro Ile Ile Val Ala Trp Ala 235 240 245			772
att ggg aaa ctt tac tac gac aat gaa aag tgc tgg ttt ggc aaa cgt Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg 250 255 260			820

cct gga gta tat act gac tac atc tac cag ggc ccc atg atc ctg gtc Pro Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val 265 270 275	868
ctg ctg atc aac ttt atc ttt ctc ttc aac att gtc cgc atc ctc atg Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu Met 280 285 290 295	916
acc aaa ctc cga gca tcc acc aca tct gag act att cag tac agg aag Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys 300 305 310	964
gct gtg aag gcc act ctg gtg ctc ttg ccc ctc ctg ggc atc acc tac Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr 315 320 325	1012
atg ttg ttc ttc gtc aac cct ggg gag gac gag gtc tcc agg gtt gtc Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Val Ser Arg Val Val 330 335 340	1060
ttc atc tac ttc aac tct ttc ctg gag tcc ttt cag ggc ttc ttc gtg Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe Val 345 350 355	1108
tct gtg ttc tat tgt ttt ctg aac agt gag gtc cgc tct gcc atc cgg Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Ile Arg 360 365 370 375	1156
aag agg tgg cgg cga tgg cag gac aag cac tcc atc aga gcc cga gtg Lys Arg Trp Arg Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg Val 380 385 390	1204
gcc cgc gcc atg tcc atc ccc acc tcc ccc acc aga gtc agc ttc cac Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe His 395 400 405	1252
agc atc aag cag tcc aca gca gtg tga acctcaggcc acagagcagc Ser Ile Lys Gln Ser Thr Ala Val 410 415	1299
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ggaagttagaa atgggcattg ggggctggaa accctgcagc agtttgatgg gcctgtgagc	1539
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gagccaccag gatttcatca gcaactgtggc actgccactg gaaagccctg ccttgctgct	1839
ttgctgccct gcacctttag acatttacta ttctgcaggc caagccagct ttctgtcact	1899

tatccactga cagcaacggg cccctcgccc ccaaaccctc ccacctctgg gtatcttcta 1959  
acctgtgaga agatgggggt cgggaagggg acttgagttg ccaggaacca gagtggggccc 2019  
agtctatgag gaaggagtgg cccctgggta ccagggccac tggcttcagt ggctggcctc 2079  
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ttatcttttc aact 2273

<210> 22  
<211> 415  
<212> PRT  
<213> Mus musculus

<400> 22

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Gly Leu Asn Pro Val Ser Thr Ser Leu Gln Asp Gln Gln Cys Glu Ser  
20 25 30

Leu Ser Leu Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val  
35 40 45

Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val  
50 55 60

Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr  
65 70 75 80

Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg  
85 90 95

Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser  
100 105 110

Lys Val His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys  
115 120 125

Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu  
130 135 140

Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser  
145 150 155 160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Val  
165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Ala Trp Cys Arg Leu Val Thr  
180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly  
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp  
210 215 220

Arg Leu Arg Lys Trp Met Phe Val Cys Ile Gly Trp Gly Val Pro Phe  
225 230 235 240

Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu  
245 250 255

Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr  
260 265 270

Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe  
275 280 285

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
290 295 300

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
305 310 315 320

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
325 330 335

Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu  
340 345 350

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser  
355 360 365

Glu Val Arg Ser Ala Ile Arg Lys Arg Trp Arg Arg Trp Gln Asp Lys  
370 375 380

His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
385 390 395 400

Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala Val  
 405 410 415

<210> 23  
 <211> 1374  
 <212> DNA  
 <213> Mus musculus

<220>  
 <221> CDS  
 <222> (79)..(1374)

<400> 23  
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 Met Gly Thr Pro Gly Ser Leu Pro Ser Ala Gln  
 1 5 10  
 ctt ctc ctc tgc ctg ttt tcc ctg ctt cca gtg ctc cag gtg gcc caa 159  
 Leu Leu Leu Cys Leu Phe Ser Leu Leu Pro Val Leu Gln Val Ala Gln  
 15 20 25  
 cca ggc cag gca ccc cag gac cag ccc ctg tgg aca ctt ttg gag cag 207  
 Pro Gly Gln Ala Pro Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln  
 30 35 40  
 tac tgc cac agg acc aca att ggg aat ttt tca ggt ccc tac acc tac 255  
 Tyr Cys His Arg Thr Thr Ile Gly Asn Phe Ser Gly Pro Tyr Thr Tyr  
 45 50 55  
 tgc aac acg acc ttg gac cag atc ggg acc tgc tgg cca cag agc gca 303  
 Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser Ala  
 60 65 70 75  
 ccc gga gcc cta gta gag aga ccg tgc ccc gag tac ttc aat ggc atc 351  
 Pro Gly Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly Ile  
 80 85 90  
 aag tac aac acg acc cgg aat gcc tac aga gag tgc ctg gag aac ggg 399  
 Lys Tyr Asn Thr Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn Gly  
 95 100 105  
 acc tgg gcc tca agg gtc aac tac tca cac tgc gaa ccc att ttg gat 447  
 Thr Trp Ala Ser Arg Val Asn Tyr Ser His Cys Glu Pro Ile Leu Asp  
 110 115 120  
 gac aag cag aga aag tat gac ctg cat tac cga atc gcc ctc att gtc 495  
 Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu Ile Val  
 125 130 135  
 aac tac ctg ggt cac tgt gtt tcc gtg gtg gcc ctg gtg gcc gct ttc 543  
 Asn Tyr Leu Gly His Cys Val Ser Val Val Ala Leu Val Ala Ala Phe  
 140 145 150 155  
 ctg ctt ttc cta gtg ctg cgg agt atc cgc tgc ctg agg aat gtg atc 591  
 Leu Leu Phe Leu Val Leu Arg Ser Ile Arg Cys Leu Arg Asn Val Ile  
 160 165 170  
 cac tgg aac ctc atc acc acc ttc att ctg aga aac atc gcg tgg ttc 639

His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Ala Trp Phe	175	180	185	
ctg ctg caa ctc atc gac cac gaa gtg cac gag ggc aat gag gtc tgg				687
Leu Leu Gln Leu Ile Asp His Glu Val His Glu Gly Asn Glu Val Trp	190	195	200	
tgc cgc tgc atc acc acc atc ttc aac tat ttt gtg gtc acc aac ttc				735
Cys Arg Cys Ile Thr Thr Ile Phe Asn Tyr Phe Val Val Thr Asn Phe	205	210	215	
ttc tgg atg ttt gtg gag ggc tgc tac ctg cac acg gcc att gtc atg				783
Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val Met	220	225	230	
acg tac tcc aca gag cac ctg cgc aag tgg ctt ttc ctc ttc att gga				831
Thr Tyr Ser Thr Glu His Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly	240	245	250	
tgg tgc att ccc tgc cct atc atc atc gcc tgg gca gtt ggc aaa ctc				879
Trp Cys Ile Pro Cys Pro Ile Ile Ile Ala Trp Ala Val Gly Lys Leu	255	260	265	
tac tat gag aat gag cag tgc tgg ttt ggc aag gaa gct ggt gat ttg				927
Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Ala Gly Asp Leu	270	275	280	
gtg gac tac atc tac cag ggc ccc gtc atg ctt gtg ctg ttg atc aat				975
Val Asp Tyr Ile Tyr Gln Gly Pro Val Met Leu Val Leu Leu Ile Asn	285	290	295	
ttt gta ttt ctg ttt aac atc gtc agg atc ctg atg acg aag tta cga				1023
Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg	300	305	310	
gca tcc acc acg tcc gag aca atc caa tac agg aag gca gtg aag gcc				1071
Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala	320	325	330	
acg ctg gtc ctc ctc ccc ctg ttg ggc atc acc tac atg ctc ttc ttt				1119
Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe	335	340	345	
gtc aat cct ggc gag gac gac ctg tcc cag att gtg ttc atc tac ttc				1167
Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe	350	355	360	
aac tct ttc ctg cag tcc ttc cag ggt ttc ttt gtg tcc gtt ttc tac				1215
Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr	365	370	375	
tgc ttc ttc aat gga gag gtg cgc gcg gcc ctg aga aag cgg tgg cac				1263
Cys Phe Phe Asn Gly Glu Val Arg Ala Ala Leu Arg Lys Arg Trp His	380	385	390	
cgc tgg cag gac cac cac gcc ctc cgg gtg cct gtg gcc cgg gcc atg				1311
Arg Trp Gln Asp His His Ala Leu Arg Val Pro Val Ala Arg Ala Met	400	405	410	
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Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys Gln				



Asp His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys Ile Thr  
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Thr Ile Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val  
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Glu Gly Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu  
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His Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys  
 245 250 255

Pro Ile Ile Ile Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu  
 260 265 270

Gln Cys Trp Phe Gly Lys Glu Ala Gly Asp Leu Val Asp Tyr Ile Tyr  
 275 280 285

Gln Gly Pro Val Met Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe  
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Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
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Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
 325 330 335

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
 340 345 350

Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln  
 355 360 365

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly  
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Glu Val Arg Ala Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His  
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tctgctgtcc c atg ggg acc cca ggc tct ctt ccc agt gca cag ctt ctc      170
          Met Gly Thr Pro Gly Ser Leu Pro Ser Ala Gln Leu Leu
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ctc tgc ctg ttt tcc ctg ctt cca gtg ctc cag gtg gcc caa cca ggc      218
Leu Cys Leu Phe Ser Leu Leu Pro Val Leu Gln Val Ala Gln Pro Gly
   15              20              25

cag gca ccc cag gac cag ccc ctg tgg aca ctt ttg gag cag tac tgc      266
Gln Ala Pro Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln Tyr Cys
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cac agg acc aca att ggg aat ttt tca ggt ccc tac acc tac tgc aac      314
His Arg Thr Thr Ile Gly Asn Phe Ser Gly Pro Tyr Thr Tyr Cys Asn
          50              55              60

acg acc ttg gac cag atc ggg acc tgc tgg cca cag agc gca ccc gga      362
Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser Ala Pro Gly
          65              70              75

gcc cta gta gag aga ccg tgc ccc gag tac ttc aat ggc atc aag tac      410
Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly Ile Lys Tyr
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aac acg acc cgg aat gcc tac aga gag tgc ctg gag aac ggg acc tgg      458
Asn Thr Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp
          95              100              105

gcc tca agg gtc aac tac tca cac tgc gaa ccc att ttg gat gac aag      506
Ala Ser Arg Val Asn Tyr Ser His Cys Glu Pro Ile Leu Asp Asp Lys
   110              115              120              125

aga aag tat gac ctg cat tac cga atc gcc ctc att gtc aac tac ctg      554
Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu Ile Val Asn Tyr Leu
          130              135              140

ggt cac tgt gtt tcc gtg gtg gcc ctg gtg gcc gct ttc ctg ctt ttc      602
Gly His Cys Val Ser Val Val Ala Leu Val Ala Ala Phe Leu Leu Phe
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cta gtg ctg cgg agt atc cgc tgc ctg agg aat gtg atc cac tgg aac      650
Leu Val Leu Arg Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn
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ctc atc acc acc ttc att ctg aga aac atc gcg tgg ttc ctg ctg caa      698
Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Ala Trp Phe Leu Leu Gln
          175              180              185

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Val  
430

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Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln Tyr Cys His Arg Thr

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40

45

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Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg  
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Val Ser Val Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val Leu  
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Arg Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr  
165 170 175

Thr Phe Ile Leu Arg Asn Ile Ala Trp Phe Leu Leu Gln Leu Ile Asp  
180 185 190

His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys Ile Thr Thr  
195 200 205

Ile Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu  
210 215 220

Gly Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu His  
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Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys Pro  
245 250 255

Ile Ile Ile Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu Gln  
260 265 270

Cys Trp Phe Gly Lys Glu Ala Gly Asp Leu Val Asp Tyr Ile Tyr Gln  
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Ser	Asn	Gly	Tyr	Arg	Val	Cys	Leu	Ala	Asn	Gly	Thr	Trp	Ala	Ala	Arg	95	
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Lys	Cys	Trp	Phe	Gly	Lys	Arg	Pro	Gly	Val	Tyr	Thr	Asp	Tyr	Ile	Tyr	270	
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Asp Leu Asn Gly Thr Cys Trp Pro Gln Ser Pro Ala Gly Gln Leu Val 50 55 60			
Val Arg Pro Cys Leu Val Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr 65 70 75 80			
Ser Asn Gly Tyr Arg Val Cys Leu Ala Asn Gly Thr Trp Ala Ala Arg 85 90 95			

Val Asn His Ser Glu Cys Gln Glu Ile Leu Ser Glu Gly Glu Lys Ser  
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Lys Ala His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys  
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Ile Ser Leu Ala Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu  
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Arg Ser Ile Arg Cys Val Arg Asn Ile Ile His Trp Asn Leu Ile Ser  
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Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met  
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Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr  
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Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly  
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Glu Gly Cys Tyr Leu His Thr Ala Val Val Leu Thr Tyr Ser Thr Asp  
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Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe  
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Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr  
 260 265 270

Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe  
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Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
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Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
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Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
 325 330 335



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Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser  
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Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys  
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Ala Arg Pro Cys Pro Glu Tyr Phe His Gly Val Gln Tyr Asn Thr Thr  
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Gly Asn Val Tyr Arg Glu Cys His Leu Asn Gly Ser Trp Ala Gly Arg  
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Gly Asp Tyr Ala Gln Cys Gln Glu Ile Leu Lys Gln Glu Lys Lys Thr  
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Lys Val His Tyr His Ile Ala Ile Val Ile Asn Phe Leu Gly His Ser  
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caa gga cct gtc atc ctt gtg ctg ctg atc aac ttc ata ttt tta ttc Gln Gly Pro Val Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe 275 280 285	864
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gag acc ata cag tac agg aaa gct gtt aaa gcc acc ctg gtg ctc ctg Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu 305 310 315 320	960
cct ttg ctt ggg atc acc tac atg ctt ttc ttt gtg acg ccc ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Thr Pro Gly Glu 325 330 335	1008
gat gaa atc tca cgt atc gtc ttt atc tat ttc aac tct ttc ctg cag Asp Glu Ile Ser Arg Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln 340 345 350	1056
tcc ttt cag ggt ttc ttt gtt tca gtt ttc tac tgc ttc ctt aat agt Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser 355 360 365	1104

gag gtg cgc tca gca gtc cgg aag cga tgg cac cga tgg cag gac aag 1152  
 Glu Val Arg Ser Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp Lys  
 370 375 380

cat tca atc cgt gct cgc gtg gcc cgt gcc atg tcc att ccc aca tca 1200  
 His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
 385 390 395 400

ccc act cgg att agt ttc cac agc atc aag caa tct tct gcc att tga 1248  
 Pro Thr Arg Ile Ser Phe His Ser Ile Lys Gln Ser Ser Ala Ile  
 405 410 415

<210> 30  
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 <212> PRT  
 <213> *Xenopus laevis*

<400> 30

Met Leu Leu Ala Lys Thr Pro Cys Leu Leu Leu Val Gln Val Ile Ala  
 1 5 10 15

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 20 25 30

Leu Gln His Asn Ser Asn Phe Thr Gly Leu Ala Cys Asn Ala Ser Ile  
 35 40 45

Asp Met Ile Gly Thr Cys Trp Pro Ser Thr Ala Ala Gly Gln Met Val  
 50 55 60

Ala Arg Pro Cys Pro Glu Tyr Phe His Gly Val Gln Tyr Asn Thr Thr  
 65 70 75 80

Gly Asn Val Tyr Arg Glu Cys His Leu Asn Gly Ser Trp Ala Gly Arg  
 85 90 95

Gly Asp Tyr Ala Gln Cys Gln Glu Ile Leu Lys Gln Glu Lys Lys Thr  
 100 105 110

Lys Val His Tyr His Ile Ala Ile Val Ile Asn Phe Leu Gly His Ser  
 115 120 125

Ile Ser Leu Cys Ala Leu Leu Val Ala Phe Ile Leu Phe Leu Arg Leu  
 130 135 140

Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Thr  
 145 150 155 160

Ala Phe Ile Leu Arg Asn Val Thr Trp Phe Val Met Gln Leu Thr Leu

165										170					175				
Ser	His	Glu	Ala	His	Asp	Ser	Asn	Val	Val	Trp	Cys	Arg	Leu	Val	Thr				
			180					185					190						
Ile	Ala	His	Asn	Tyr	Phe	Tyr	Val	Thr	Asn	Phe	Phe	Trp	Met	Phe	Gly				
		195					200					205							
Glu	Gly	Cys	Tyr	Leu	His	Thr	Ala	Ile	Val	Leu	Thr	Tyr	Ser	Thr	Asp				
	210					215					220								
Lys	Leu	Arg	Lys	Trp	Met	Phe	Ile	Cys	Ile	Gly	Trp	Cys	Ile	Pro	Phe				
225					230					235					240				
Pro	Ile	Ile	Val	Ala	Trp	Ala	Ile	Gly	Lys	Leu	Tyr	Tyr	Asp	Asn	Glu				
				245					250					255					
Lys	Cys	Trp	Phe	Gly	Lys	Lys	Ala	Gly	Val	Tyr	Thr	Asp	Phe	Ile	Tyr				
			260					265					270						
Gln	Gly	Pro	Val	Ile	Leu	Val	Leu	Leu	Ile	Asn	Phe	Ile	Phe	Leu	Phe				
		275					280					285							
Asn	Ile	Val	Arg	Ile	Leu	Met	Thr	Lys	Leu	Arg	Ala	Ser	Thr	Thr	Ser				
	290					295					300								
Glu	Thr	Ile	Gln	Tyr	Arg	Lys	Ala	Val	Lys	Ala	Thr	Leu	Val	Leu	Leu				
305					310					315					320				
Pro	Leu	Leu	Gly	Ile	Thr	Tyr	Met	Leu	Phe	Phe	Val	Thr	Pro	Gly	Glu				
				325					330					335					
Asp	Glu	Ile	Ser	Arg	Ile	Val	Phe	Ile	Tyr	Phe	Asn	Ser	Phe	Leu	Gln				
			340					345					350						
Ser	Phe	Gln	Gly	Phe	Phe	Val	Ser	Val	Phe	Tyr	Cys	Phe	Leu	Asn	Ser				
		355					360					365							
Glu	Val	Arg	Ser	Ala	Val	Arg	Lys	Arg	Trp	His	Arg	Trp	Gln	Asp	Lys				
	370					375					380								
His	Ser	Ile	Arg	Ala	Arg	Val	Ala	Arg	Ala	Met	Ser	Ile	Pro	Thr	Ser				
385					390					395					400				
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 <213> *Xenopus laevis*

<220>  
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<400> 31  
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 Met Asp Ser Thr Ile Phe Glu Ile Ile Ile Asp Glu Phe Asp Ala Asn  
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tgc agc ctt ttg gat gct ttt cag gac agt ttt ttg cac tct gag tcc 96  
 Cys Ser Leu Leu Asp Ala Phe Gln Asp Ser Phe Leu His Ser Glu Ser  
 20 25 30

tcc tct ttc ttt ggc ttt gaa ggt ccc tat tgt agc gct acc att gac 144  
 Ser Ser Phe Phe Gly Phe Glu Gly Pro Tyr Cys Ser Ala Thr Ile Asp  
 35 40 45

cag att ggc acg tgc tgg ccc agg agc cta gcc ggg gaa ctt gtg gaa 192  
 Gln Ile Gly Thr Cys Trp Pro Arg Ser Leu Ala Gly Glu Leu Val Glu  
 50 55 60

aga ccc tgc ccg gat tcc ttc aat ggg atc aga tac aac aca act aga 240  
 Arg Pro Cys Pro Asp Ser Phe Asn Gly Ile Arg Tyr Asn Thr Thr Arg  
 65 70 75 80

aac gtc tac aga gaa tgc ttt gag aat gga acc tgg gcg tcc tgg atg 288  
 Asn Val Tyr Arg Glu Cys Phe Glu Asn Gly Thr Trp Ala Ser Trp Met  
 85 90 95

aat tac tct cag tgt gtg ccc att ctg gat aat aag agg aag tac gcc 336  
 Asn Tyr Ser Gln Cys Val Pro Ile Leu Asp Asn Lys Arg Lys Tyr Ala  
 100 105 110

ctt cat tac aag att gct ctc atc ata aac tac ctg ggg cac tgc atc 384  
 Leu His Tyr Lys Ile Ala Leu Ile Ile Asn Tyr Leu Gly His Cys Ile  
 115 120 125

tcc atc ttg gct ctc gtt atc gct ttc ttg ctc ttt ctg tgt ttg agg 432  
 Ser Ile Leu Ala Leu Val Ile Ala Phe Leu Leu Phe Leu Cys Leu Arg  
 130 135 140

agt ata aga tgc ctt cgg aac att atc cac tgg aat tta atc act act 480  
 Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Thr Thr  
 145 150 155 160

ttc atc ctg agg aac atc atg tgg ttc ctg ctg cag atg att gac cat 528  
 Phe Ile Leu Arg Asn Ile Met Trp Phe Leu Leu Gln Met Ile Asp His  
 165 170 175

aac att cat gaa agc aac gag gtc tgg tgt cgg tgt atc aca act att 576  
 Asn Ile His Glu Ser Asn Glu Val Trp Cys Arg Cys Ile Thr Thr Ile  
 180 185 190

tac aat tac ttt gtg gtg acc aac ttc ttc tgg atg ttt gtg gaa gga 624

Tyr Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly	
195 200 205	
tgt tac cta cac aca gct ata gtg atg aca tac tca acg gac aaa ctt	672
Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Asp Lys Leu	
210 215 220	
agg aaa tgg gtg ttc ctc ttc ata gga tgg tgt att cca tct ccg atc	720
Arg Lys Trp Val Phe Leu Phe Ile Gly Trp Cys Ile Pro Ser Pro Ile	
225 230 235 240	
att gtc acc tgg gcc atc tgc aag ctt ttc tat gaa aat gaa cag tgt	768
Ile Val Thr Trp Ala Ile Cys Lys Leu Phe Tyr Glu Asn Glu Gln Cys	
245 250 255	
tgg att ggg aag gag ccc ggg aaa tac att gat tac att tac cag ggc	816
Trp Ile Gly Lys Glu Pro Gly Lys Tyr Ile Asp Tyr Ile Tyr Gln Gly	
260 265 270	
cgg gtg att ctc gta ctt ctg ata aat ttt gtg ttc tta ttc aac att	864
Arg Val Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile	
275 280 285	
gta aga att ttg atg aca aaa ctg aga gct tca act aca tct gaa acg	912
Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr	
290 295 300	
ata cag tac agg aag gct gtg aag gca acg tta gtc ctt ctc cct ctt	960
Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu	
305 310 315 320	
ctg gga atc acc tac atg ctc ttc ttc gtc aac cct gga gag gat gac	1008
Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp	
325 330 335	
gtt tct cag atc gtt ttt att tac ttc aac tcg ttt ctt cag tcc ttt	1056
Val Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe	
340 345 350	
cag ggt ttc ttt gtg tca gta ttt tac tgc ttc ctt aat ggg gag gtc	1104
Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Gly Glu Val	
355 360 365	
cgg tcg gct gca agg aaa aga tgg cac cgc tgg caa gac cac cat tct	1152
Arg Ser Ala Ala Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser	
370 375 380	
ctg cgg gtt cgg gta gcc aga gcc atg tcc ata cca aca tca ccg acc	1200
Leu Arg Val Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr	
385 390 395 400	
aga atc agc ttt cac agt ata aag caa acg gca gcc gtc tga	1242
Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val	
405 410	

<210> 32  
 <211> 413  
 <212> PRT  
 <213> Xenopus laevis

<400> 32

Met Asp Ser Thr Ile Phe Glu Ile Ile Ile Asp Glu Phe Asp Ala Asn  
1 5 10 15

Cys Ser Leu Leu Asp Ala Phe Gln Asp Ser Phe Leu His Ser Glu Ser  
20 25 30

Ser Ser Phe Phe Gly Phe Glu Gly Pro Tyr Cys Ser Ala Thr Ile Asp  
35 40 45

Gln Ile Gly Thr Cys Trp Pro Arg Ser Leu Ala Gly Glu Leu Val Glu  
50 55 60

Arg Pro Cys Pro Asp Ser Phe Asn Gly Ile Arg Tyr Asn Thr Thr Arg  
65 70 75 80

Asn Val Tyr Arg Glu Cys Phe Glu Asn Gly Thr Trp Ala Ser Trp Met  
85 90 95

Asn Tyr Ser Gln Cys Val Pro Ile Leu Asp Asn Lys Arg Lys Tyr Ala  
100 105 110

Leu His Tyr Lys Ile Ala Leu Ile Ile Asn Tyr Leu Gly His Cys Ile  
115 120 125

Ser Ile Leu Ala Leu Val Ile Ala Phe Leu Leu Phe Leu Cys Leu Arg  
130 135 140

Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Thr Thr  
145 150 155 160

Phe Ile Leu Arg Asn Ile Met Trp Phe Leu Leu Gln Met Ile Asp His  
165 170 175

Asn Ile His Glu Ser Asn Glu Val Trp Cys Arg Cys Ile Thr Thr Ile  
180 185 190

Tyr Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly  
195 200 205

Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Asp Lys Leu  
210 215 220

Arg Lys Trp Val Phe Leu Phe Ile Gly Trp Cys Ile Pro Ser Pro Ile  
225 230 235 240

Ile Val Thr Trp Ala Ile Cys Lys Leu Phe Tyr Glu Asn Glu Gln Cys  
245 250 255

Trp Ile Gly Lys Glu Pro Gly Lys Tyr Ile Asp Tyr Ile Tyr Gln Gly  
260 265 270

Arg Val Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile  
275 280 285

Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr  
290 295 300

Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu  
305 310 315 320

Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp  
325 330 335

Val Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe  
340 345 350

Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Gly Glu Val  
355 360 365

Arg Ser Ala Ala Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser  
370 375 380

Leu Arg Val Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr  
385 390 395 400

Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val  
405 410

<210> 33  
<211> 1338  
<212> DNA  
<213> Ameiurus nebulosus

<220>  
<221> CDS  
<222> (1)..(1338)

<400> 33  
atg cat ttc ctt cta cgt cct cag gtg ttt tct atc tgg atc aca cta  
Met His Phe Leu Leu Arg Pro Gln Val Phe Ser Ile Trp Ile Thr Leu  
1 5 10 15

48

ttc tct ggg gcc aca gct gag ctc aca tgc gac act ctg ctc ctg ctc  
Phe Ser Gly Ala Thr Ala Glu Leu Thr Cys Asp Thr Leu Leu Leu Leu

96



20	25	30	
tcc acc aac cgc aca gct cgc aca tta ata cta tgg aac cag acg tcg Ser Thr Asn Arg Thr Ala Arg Thr Leu Ile Leu Trp Asn Gln Thr Ser 35 40 45			144
agc tca agt aat gcc aca ggt aca agc tca agt aat gcc aca ggt aca Ser Ser Ser Asn Ala Thr Gly Thr Ser Ser Ser Asn Ala Thr Gly Thr 50 55 60			192
agc tca agc aat gcc aca ggt ttg ttc tgt aat ata tct ata gat ggc Ser Ser Ser Asn Ala Thr Gly Leu Phe Cys Asn Ile Ser Ile Asp Gly 65 70 75 80			240
atc ggg acg tgt tgg ccc agg agc aac gca ggg gaa ata gta tca cgt Ile Gly Thr Cys Trp Pro Arg Ser Asn Ala Gly Glu Ile Val Ser Arg 85 90 95			288
cca tgt cct gag acc ttc ttg ggt gtc cgc tac aac acc acc aat aac Pro Cys Pro Glu Thr Phe Leu Gly Val Arg Tyr Asn Thr Thr Asn Asn 100 105 110			336
gtc tac aga gaa tgc ctc gcc aat gga acg tgg gcg aag aag ggg aat Val Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Lys Lys Gly Asn 115 120 125			384
tat tct cag tgt cag gaa att ctc aat gaa gag aaa aag agc aag ctg Tyr Ser Gln Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser Lys Leu 130 135 140			432
cac tac cac att gca gtg att ata aac tac ctg ggc cac tgc atc tct His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys Ile Ser 145 150 155 160			480
ctc gga gcc ctg ctg gtt gcc ttc att ctc ttt atg agg ctg agg atg Leu Gly Ala Leu Leu Val Ala Phe Ile Leu Phe Met Arg Leu Arg Met 165 170 175			528
atc cgc tgc ctc agg aac atc att cac tgg aat ctg att atg gct ttc Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Met Ala Phe 180 185 190			576
atc ctg cgc aat gct aca tgg ttc gta gtg cag ctg acc atg aac cca Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met Asn Pro 195 200 205			624
gag gtg cat gag agc aat gtg atc tgg tgc agg ctg gtt aca gca gcg Glu Val His Glu Ser Asn Val Ile Trp Cys Arg Leu Val Thr Ala Ala 210 215 220			672
tat aat tac ttt cat gtg acc aac ttc ttc tgg atg ttt ggt gag ggc Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly 225 230 235 240			720
tgc tat ctg cac acg gcc atc gtg ctg act tac tcc act gat aag ctc Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu 245 250 255			768
agg aag tgg ctg ttc atc tgt atc ggc tgg tgt att ccc ttt cct atc Arg Lys Trp Leu Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe Pro Ile 260 265 270			816

atc gtt gca tgg gcc att ggt aag ctg tat tac gac aat gaa aag tgc	864
Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys	
275 280 285	
tgg ttt gga aaa cga gct ggt gtt tat act gac tac atc tat cag ggc	912
Trp Phe Gly Lys Arg Ala Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly	
290 295 300	
ccc atg atc ctt gtt ctt ctg atc aac ttt att ttc ctt ttc aac atc	960
Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile	
305 310 315 320	
gtg agg atc ctg atg aca aag cta aga gcc tcc acc aca tca gag acg	1008
Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr	
325 330 335	
att cag tac agg aaa gct gtg aag gcc act ctg gtc ctg ctg cct ctc	1056
Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu	
340 345 350	
ctc ggg atc acc tac atg ctt ttc ttt gtt aac cct gga gag gac gag	1104
Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu	
355 360 365	
atc tcc caa atc gtc ttc atc tat ttc aat tct ttc ctc gag tcc ttt	1152
Ile Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe	
370 375 380	
caa ggt ttc ttc gtg tct gtg ttt tat tgc ttc ctg aac agt gaa gtc	1200
Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val	
385 390 395 400	
cgt tcg gct gtt cgg aag cgc tgg cac cgc cgg cag gac aag cac tca	1248
Arg Ser Ala Val Arg Lys Arg Trp His Arg Arg Gln Asp Lys His Ser	
405 410 415	
atc cgg gca cgg gtg gca cgg gcc atg tcc att ccc acc tcg cct act	1296
Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr	
420 425 430	
cgg gtc agc ttc cac agc atc aag caa tcc tca gca gtg tga	1338
Arg Val Ser Phe His Ser Ile Lys Gln Ser Ser Ala Val	
435 440 445	

<210> 34  
 <211> 445  
 <212> PRT  
 <213> Ameiurus nebulosus

<400> 34

Met His Phe Leu Leu Arg Pro Gln Val Phe Ser Ile Trp Ile Thr Leu
1 5 10 15

Phe Ser Gly Ala Thr Ala Glu Leu Thr Cys Asp Thr Leu Leu Leu Leu
20 25 30

Ser Thr Asn Arg Thr Ala Arg Thr Leu Ile Leu Trp Asn Gln Thr Ser  
 35 40 45

Ser Ser Ser Asn Ala Thr Gly Thr Ser Ser Ser Asn Ala Thr Gly Thr  
 50 55 60

Ser Ser Ser Asn Ala Thr Gly Leu Phe Cys Asn Ile Ser Ile Asp Gly  
 65 70 75 80

Ile Gly Thr Cys Trp Pro Arg Ser Asn Ala Gly Glu Ile Val Ser Arg  
 85 90 95

Pro Cys Pro Glu Thr Phe Leu Gly Val Arg Tyr Asn Thr Thr Asn Asn  
 100 105 110

Val Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Lys Lys Gly Asn  
 115 120 125

Tyr Ser Gln Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser Lys Leu  
 130 135 140

His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys Ile Ser  
 145 150 155 160

Leu Gly Ala Leu Leu Val Ala Phe Ile Leu Phe Met Arg Leu Arg Met  
 165 170 175

Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Met Ala Phe  
 180 185 190

Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met Asn Pro  
 195 200 205

Glu Val His Glu Ser Asn Val Ile Trp Cys Arg Leu Val Thr Ala Ala  
 210 215 220

Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly  
 225 230 235 240

Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu  
 245 250 255

Arg Lys Trp Leu Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe Pro Ile  
 260 265 270

Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys

275	280	285	
Trp Phe Gly Lys Arg Ala Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly			
290	295	300	
Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile			
305	310	315	320
Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr			
	325	330	335
Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu			
	340	345	350
Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu			
	355	360	365
Ile Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe			
	370	375	380
Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val			
385	390	395	400
Arg Ser Ala Val Arg Lys Arg Trp His Arg Arg Gln Asp Lys His Ser			
	405	410	415
Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr			
	420	425	430
Arg Val Ser Phe His Ser Ile Lys Gln Ser Ser Ala Val			
	435	440	445
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<222> (102)..(1388)			
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aactgattaa taatcctgcc agctgatcaa ctggaaaggg a atg tgg atc tgc cta			116
		Met Trp Ile Cys Leu	
		1 5	
atg cta aag gtc ttg tct atc ttg tct ttt gtg gtt gtg aag gtg tca			164
Met Leu Lys Val Leu Ser Ile Leu Ser Phe Val Val Val Lys Val Ser			

	10	15	20	
gct gat ctt acc tgc gat gcc gtg cta atg ctg gct tct gga aac cac				212
Ala Asp Leu Thr Cys Asp Ala Val Leu Met Leu Ala Ser Gly Asn His	25	30	35	
aca ttg tac cat ctg gat gcc gct aat cac tct gac act aat aac tcg				260
Thr Leu Tyr His Leu Asp Ala Ala Asn His Ser Asp Thr Asn Asn Ser	40	45	50	
ggt gtg ttt tgc agc aca gtt atc gat ggc atc ggc acc tgc tgg ccg				308
Gly Val Phe Cys Ser Thr Val Ile Asp Gly Ile Gly Thr Cys Trp Pro	55	60	65	
cgc agc gtg gcc ggg gag atg gtg tcg cgt ccg tgt ccg gaa ttc ctc				356
Arg Ser Val Ala Gly Glu Met Val Ser Arg Pro Cys Pro Glu Phe Leu	70	75	80	85
tac gga gtc cga tac aac acc acc aat aaa atc ttc cgg aaa tgt ctt				404
Tyr Gly Val Arg Tyr Asn Thr Thr Asn Lys Ile Phe Arg Lys Cys Leu	90	95	100	
gct aat gga acc tgg gcg ccc aaa agc aac tac tct cag tgc aag gct				452
Ala Asn Gly Thr Trp Ala Pro Lys Ser Asn Tyr Ser Gln Cys Lys Ala	105	110	115	
att ctc aat gta cag agg aag agc aag ctg cat tat cga atc gct gtc				500
Ile Leu Asn Val Gln Arg Lys Ser Lys Leu His Tyr Arg Ile Ala Val	120	125	130	
atc att aac tac ctg ggt cac tgc ttg tca ctg ttc act ctt ctt atc				548
Ile Ile Asn Tyr Leu Gly His Cys Leu Ser Leu Phe Thr Leu Leu Ile	135	140	145	
gcc ttc ata atc ttc tta cga ctc agg agt att cgc tgt tta agg aac				596
Ala Phe Ile Ile Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn	150	155	160	165
atc atc cac tgg aat cta acc tct gcc ttc atc ctg aga aat gcg acg				644
Ile Ile His Trp Asn Leu Thr Ser Ala Phe Ile Leu Arg Asn Ala Thr	170	175	180	
tgg ttc atc gtt cag ctc acc atg aac cct gat gta cac gag agc aac				692
Trp Phe Ile Val Gln Leu Thr Met Asn Pro Asp Val His Glu Ser Asn	185	190	195	
gtg cca tgg tgc cgt tta gtg acg acg gca tat aac tac ttc cac atg				740
Val Pro Trp Cys Arg Leu Val Thr Thr Ala Tyr Asn Tyr Phe His Met	200	205	210	
gcc aat ttt ttc tgg atg ttc ggc gaa ggc tgt tat ctt cac aca gcc				788
Ala Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr Ala	215	220	225	
atc gtg ctc acc tac tcc act gac aaa ctc aag aaa tgg atg ttc atc				836
Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu Lys Lys Trp Met Phe Ile	230	235	240	245
tgc atc gga tgg tgt att cct tcg cct att atc gtc gcc tgg gcc atc				884
Cys Ile Gly Trp Cys Ile Pro Ser Pro Ile Ile Val Ala Trp Ala Ile	250	255	260	

gga aag ctg tac tac gac aac gag aag tgt tgg ttt ggg aag aga gca Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg Ala 265 270 275	932
ggc ata tac aca gac tac atc tac cag ggc ccc atg atc ctg gta ctt Gly Ile Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val Leu 280 285 290	980
atg atc aat ttc gtg ttc ctc ttc aac ata gta agg atc ctc atg acc Met Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr 295 300 305	1028
aaa ctc cgg gcc tcc acc aca tcc gaa acc atc cag tac agg aag gcg Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala 310 315 320 325	1076
gtg aag gcc acg ctc gtg tta ctg cct ctg ctc ggg atc acg tac atg Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met 330 335 340	1124
ctg ttc ttc gta aac cca gga gag gac gaa atc tcg cag atc gtc ttc Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Ile Ser Gln Ile Val Phe 345 350 355	1172
atc tac ttc aat tcc ttt ctg cag tcc ttt cag ggc ttc ttt gtg tcc Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser 360 365 370	1220
gtg ttc tac tgt ttt cta aac agc gag gtc cgc tcg gct gtt cgg aag Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Val Arg Lys 375 380 385	1268
cac tgg cac cgc tgg cag gac cac cat tcc atc cgc gca cga gtt gcg His Trp His Arg Trp Gln Asp His His Ser Ile Arg Ala Arg Val Ala 390 395 400 405	1316
aga gcg atg tcc att ccc acc tca cct tcg cgc ctc agc ttc cac agc Arg Ala Met Ser Ile Pro Thr Ser Pro Ser Arg Leu Ser Phe His Ser 410 415 420	1364
atc aaa cag tcc acc tct gtc tga tacagggacg cataacattg aaaaagaaag Ile Lys Gln Ser Thr Ser Val 425	1418
aggcaggcac tctatcagtg agga	1442

<210> 36  
 <211> 428  
 <212> PRT  
 <213> Ameiurus nebulosus

<400> 36

Met Trp Ile Cys Leu Met Leu Lys Val Leu Ser Ile Leu Ser Phe Val
1 5 10 15

Val Val Lys Val Ser Ala Asp Leu Thr Cys Asp Ala Val Leu Met Leu
20 25 30

Ala Ser Gly Asn His Thr Leu Tyr His Leu Asp Ala Ala Asn His Ser  
 35 40 45

Asp Thr Asn Asn Ser Gly Val Phe Cys Ser Thr Val Ile Asp Gly Ile  
 50 55 60

Gly Thr Cys Trp Pro Arg Ser Val Ala Gly Glu Met Val Ser Arg Pro  
 65 70 75 80

Cys Pro Glu Phe Leu Tyr Gly Val Arg Tyr Asn Thr Thr Asn Lys Ile  
 85 90 95

Phe Arg Lys Cys Leu Ala Asn Gly Thr Trp Ala Pro Lys Ser Asn Tyr  
 100 105 110

Ser Gln Cys Lys Ala Ile Leu Asn Val Gln Arg Lys Ser Lys Leu His  
 115 120 125

Tyr Arg Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys Leu Ser Leu  
 130 135 140

Phe Thr Leu Leu Ile Ala Phe Ile Ile Phe Leu Arg Leu Arg Ser Ile  
 145 150 155 160

Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Thr Ser Ala Phe Ile  
 165 170 175

Leu Arg Asn Ala Thr Trp Phe Ile Val Gln Leu Thr Met Asn Pro Asp  
 180 185 190

Val His Glu Ser Asn Val Pro Trp Cys Arg Leu Val Thr Thr Ala Tyr  
 195 200 205

Asn Tyr Phe His Met Ala Asn Phe Phe Trp Met Phe Gly Glu Gly Cys  
 210 215 220

Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu Lys  
 225 230 235 240

Lys Trp Met Phe Ile Cys Ile Gly Trp Cys Ile Pro Ser Pro Ile Ile  
 245 250 255

Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp  
 260 265 270

Phe Gly Lys Arg Ala Gly Ile Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro  
 275 280 285

Met Ile Leu Val Leu Met Ile Asn Phe Val Phe Leu Phe Asn Ile Val  
 290 295 300

Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile  
 305 310 315 320

Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu  
 325 330 335

Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Ile  
 340 345 350

Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln  
 355 360 365

Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg  
 370 375 380

Ser Ala Val Arg Lys His Trp His Arg Trp Gln Asp His His Ser Ile  
 385 390 395 400

Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Ser Arg  
 405 410 415

Leu Ser Phe His Ser Ile Lys Gln Ser Thr Ser Val  
 420 425

<210> 37  
 <211> 1218  
 <212> DNA  
 <213> Ameiurus nebulosus

<220>  
 <221> CDS  
 <222> (1)..(1218)

<400> 37  
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 Met Glu Val Ser Leu Leu Glu Leu Leu Ser Val Glu Val Asn Cys Ser  
 1 5 10 15

ctc gcg gac gcg ttt gga gac cct gcg tac gga aac gca tca gac gct 96  
 Leu Ala Asp Ala Phe Gly Asp Pro Ala Tyr Gly Asn Ala Ser Asp Ala  
 20 25 30

ctg tac tgc aac gcc acg gcg gat gag atc gcc acg tgc tgg ccg agg 144  
 Leu Tyr Cys Asn Ala Thr Ala Asp Glu Ile Gly Thr Cys Trp Pro Arg



35	40	45	
agc ggc gcg ggg aga gtg gtg gcg cgg ccg tgc ccc gac ttc atc aac Ser Gly Ala Gly Arg Val Val Ala Arg Pro Cys Pro Asp Phe Ile Asn 50 55 60			192
ggg gtc aag tac aac agc acc agg agc gcg tat aga gaa tgc ctg gag Gly Val Lys Tyr Asn Ser Thr Arg Ser Ala Tyr Arg Glu Cys Leu Glu 65 70 75 80			240
aac ggc aca tgg gct ttc aag atc aac tac tcc agc tgc gag ccc att Asn Gly Thr Trp Ala Phe Lys Ile Asn Tyr Ser Ser Cys Glu Pro Ile 85 90 95			288
tta gag gaa aag agg aag tac ccg gtc cac tac aag atc gct ctc atc Leu Glu Glu Lys Arg Lys Tyr Pro Val His Tyr Lys Ile Ala Leu Ile 100 105 110			336
atc aac tat ttg gga cac tgc ata tct gta ggt gct ctc gtc atc gcc Ile Asn Tyr Leu Gly His Cys Ile Ser Val Gly Ala Leu Val Ile Ala 115 120 125			384
ttc gtt ctc ttc ctg tgc ttg aga agc atc cgg tgt ttg cgg aat gta Phe Val Leu Phe Leu Cys Leu Arg Ser Ile Arg Cys Leu Arg Asn Val 130 135 140			432
att cac tgg aat tta ata acc acc ttc atc ctg agg aac atc atg tgg Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Met Trp 145 150 155 160			480
ctt ctg ctg cag ctc atc gac cac aac atc cat gaa agg aac gag ccg Leu Leu Leu Gln Leu Ile Asp His Asn Ile His Glu Arg Asn Glu Pro 165 170 175			528
tgg tgc cgc ctc ata acc acc gtc tat aac tat ttt gtg gtg acg aat Trp Cys Arg Leu Ile Thr Thr Val Tyr Asn Tyr Phe Val Val Thr Asn 180 185 190			576
ttt ttc tgg atg ttc gtg gag ggc tgt tat ctt cac aca gcc atc gtt Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val 195 200 205			624
atg acc tac tcc acc gac aag ctc cgg aag tgg gtc ttc ctc ttc atc Met Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Val Phe Leu Phe Ile 210 215 220			672
ggg tgg tgt att ccg tgt ccg gtc atc att gcg tgg gcc gtc ggg aag Gly Trp Cys Ile Pro Cys Pro Val Ile Ile Ala Trp Ala Val Gly Lys 225 230 235 240			720
ctg tac aac gaa aac gaa cag tgc tgg ttt gga aaa gaa ccc gga aaa Leu Tyr Asn Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly Lys 245 250 255			768
tac gtg gac tac att tat cag ggt cct gtg att gtt gtt ctg ctg ata Tyr Val Asp Tyr Ile Tyr Gln Gly Pro Val Ile Val Val Leu Leu Ile 260 265 270			816
aac ttc gtg ttc ctg ttc aac atc gta cgt att ctc atg acg aag ctg Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu 275 280 285			864

cga gcc tcc acc acg tca gag acc ata cag tac agg aaa gcg gtg aag Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys 290 295 300	912
gcg acg tta gtg ctg ctt cct ctg ctc ggc atc aca tac atg ctg ttc Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe 305 310 315 320	960
ttc gtg aat ccg ggg gat gat gac atc tca cag att gtc ttt att tat Phe Val Asn Pro Gly Asp Asp Asp Ile Ser Gln Ile Val Phe Ile Tyr 325 330 335	1008
ttc aat tcc ttc ctg cag tcc ttt cag ggt ttc ttc gtc tca gtg ttt Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe 340 345 350	1056
tac tgc ttc ctc aac ggt gag gta cgg tca gca gta agg aaa cgt tgg Tyr Cys Phe Leu Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg Trp 355 360 365	1104
cac aga tgg cag gat aac cac gct ctc cgt gtt cgg gtt gcc agg gcg His Arg Trp Gln Asp Asn His Ala Leu Arg Val Arg Val Ala Arg Ala 370 375 380	1152
atg tcc atc cca aca tca cct act cgc atc agc ttc cac agc att aaa Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys 385 390 395 400	1200
cac acc acc gct gtg tga His Thr Thr Ala Val 405	1218
<210> 38	
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<212> PRT	
<213> Ameiurus nebulosus	
<400> 38	
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Leu Ala Asp Ala Phe Gly Asp Pro Ala Tyr Gly Asn Ala Ser Asp Ala 20 25 30	
Leu Tyr Cys Asn Ala Thr Ala Asp Glu Ile Gly Thr Cys Trp Pro Arg 35 40 45	
Ser Gly Ala Gly Arg Val Val Ala Arg Pro Cys Pro Asp Phe Ile Asn 50 55 60	
Gly Val Lys Tyr Asn Ser Thr Arg Ser Ala Tyr Arg Glu Cys Leu Glu 65 70 75 80	

Asn Gly Thr Trp Ala Phe Lys Ile Asn Tyr Ser Ser Cys Glu Pro Ile  
 85 90 95

Leu Glu Glu Lys Arg Lys Tyr Pro Val His Tyr Lys Ile Ala Leu Ile  
 100 105 110

Ile Asn Tyr Leu Gly His Cys Ile Ser Val Gly Ala Leu Val Ile Ala  
 115 120 125

Phe Val Leu Phe Leu Cys Leu Arg Ser Ile Arg Cys Leu Arg Asn Val  
 130 135 140

Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Met Trp  
 145 150 155 160

Leu Leu Leu Gln Leu Ile Asp His Asn Ile His Glu Arg Asn Glu Pro  
 165 170 175

Trp Cys Arg Leu Ile Thr Thr Val Tyr Asn Tyr Phe Val Val Thr Asn  
 180 185 190

Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val  
 195 200 205

Met Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Val Phe Leu Phe Ile  
 210 215 220

Gly Trp Cys Ile Pro Cys Pro Val Ile Ile Ala Trp Ala Val Gly Lys  
 225 230 235 240

Leu Tyr Asn Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly Lys  
 245 250 255

Tyr Val Asp Tyr Ile Tyr Gln Gly Pro Val Ile Val Val Leu Leu Ile  
 260 265 270

Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu  
 275 280 285

Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys  
 290 295 300

Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe  
 305 310 315 320

Phe Val Asn Pro Gly Asp Asp Asp Ile Ser Gln Ile Val Phe Ile Tyr

325	330	335
Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe		
340	345	350
Tyr Cys Phe Leu Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg Trp		
355	360	365
His Arg Trp Gln Asp Asn His Ala Leu Arg Val Arg Val Ala Arg Ala		
370	375	380
Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys		
385	390	395
His Thr Thr Ala Val		
405		

<210> 39  
 <211> 1248  
 <212> DNA  
 <213> Bos taurus

<220>  
 <221> CDS  
 <222> (1)..(1248)

<400> 39	
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Met Gly Arg Arg Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu Leu	
1 5 10 15	
ggg ctg aac tcc atc tct gcc tcc ctc cag gac cag cat tgc gag agc	96
Gly Leu Asn Ser Ile Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser	
20 25 30	
ttg tcc gtg gcc agc aac gtc tct gga ctg cag tgc aat gct tcc gtg	144
Leu Ser Val Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val	
35 40 45	
gac ctt att ggt acc tgc tgg ccc cag agt cct gca ggg cag ttg gtg	192
Asp Leu Ile Gly Thr Cys Trp Pro Gln Ser Pro Ala Gly Gln Leu Val	
50 55 60	
gtt cga ccc tgc ctc gta ttt ttc tat ggt gtc cgc tac aat acc aca	240
Val Arg Pro Cys Leu Val Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr	
65 70 75 80	
aac aac ggc tac cgg gag tgc ctg gcc aat ggc acg tgg gcc gcc cgc	288
Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Ala Arg	
85 90 95	
gtg aac tac tcc gag tgc caa gag atc ctc agc gag gag aag aag agc	336
Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Ser Glu Glu Lys Lys Ser	
100 105 110	

aag gtg cac tac cac atc gct gtc atc atc aac tac cta ggc cac tgc Lys Val His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys 115 120 125	384
atc tcc ctg gcg gcc ctc ctg gtg gcc ttt gtc ctc ttt ctg cgg ctc Ile Ser Leu Ala Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu 130 135 140	432
agg agc atc cgg tgc ctg aga aac atc atc cac tgg aac ctc atc tca Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser 145 150 155 160	480
gcc ttc atc ctg cgc aat gcc acg tgg ttc gtg gtc cag ctc acc atg Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met 165 170 175	528
agc ccc gaa gtc cat cag agc aac gtg ggc tgg tgc agg ctg gtg aca Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr 180 185 190	576
gcc gcc tac aac tac ttc cac gtg acc aac ttc ttc tgg atg ttc ggt Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly 195 200 205	624
gag ggc tgc tac ctg cac acg gcc atc gtg ctc acg tac tcc aca gac Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp 210 215 220	672
cgg ctg cga aag tgg atg ttt atc tgc atc ggc tgg ggt gtg cct ttc Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe 225 230 235 240	720
ccc atc att gtg gcc tgg gcc att ggg aag ctg tac tac gac aat gag Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu 245 250 255	768
aag tgc tgg ttt ggc aaa agg cct ggg gtg tac act gac tac atc tac Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr 260 265 270	816
cag ggc ccg atg atc ttg gtc ctg ctg atc aat ttc atc ttc ctt ttc Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe 275 280 285	864
aac atc gtc cgc atc ctc atg acc aaa ctc cgg gca tcc acc acc tct Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser 290 295 300	912
gag acc att cag tac agg aag gct gtg aag gcc act ctg gtg ctg ctc Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu 305 310 315 320	960
ccc ctc ctg ggc atc acg tac atg ctg ttc ttc gtg aac cct ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu 325 330 335	1008
gac gag gtc tcc agg gtc gtc ttc atc tac ttc aac tcc ttc ctg gaa Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu 340 345 350	1056
tct ttc cag ggc ttc ttc gtg tct gtg ttc tac tgc ttc ctc aac agc	1104

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser  
 355 360 365  
 gag gtc cgc tct gcc atc cgg aag agg tgg cac cgc tgg cag gac aag 1152  
 Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys  
 370 375 380  
 cac tca atc cgt gcc cgc gtg gct cgc gcc atg tcc atc ccc acc tcc 1200  
 His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
 385 390 395 400  
 ccc acc cgt gtc agc ttt cac agc atc aag cag tcc aca gca gtg tga 1248  
 Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala Val  
 405 410 415  
  
 <210> 40  
 <211> 415  
 <212> PRT  
 <213> Bos taurus  
  
 <400> 40  
 Met Gly Arg Arg Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu Leu  
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 Gly Leu Asn Ser Ile Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser  
 20 25 30  
 Leu Ser Val Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val  
 35 40 45  
 Asp Leu Ile Gly Thr Cys Trp Pro Gln Ser Pro Ala Gly Gln Leu Val  
 50 55 60  
 Val Arg Pro Cys Leu Val Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr  
 65 70 75 80  
 Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Ala Arg  
 85 90 95  
 Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Ser Glu Glu Lys Lys Ser  
 100 105 110  
 Lys Val His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys  
 115 120 125  
 Ile Ser Leu Ala Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu  
 130 135 140  
 Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser  
 145 150 155 160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met  
 165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr  
 180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly  
 195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp  
 210 215 220

Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe  
 225 230 235 240

Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu  
 245 250 255

Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr  
 260 265 270

Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe  
 275 280 285

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
 290 295 300

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
 305 310 315 320

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
 325 330 335

Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu  
 340 345 350

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser  
 355 360 365

Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys  
 370 375 380

His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
 385 390 395 400

Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala Val  
405 410 415

<210> 41  
<211> 1422  
<212> DNA  
<213> Gallus gallus

<220>  
<221> CDS  
<222> (138)..(1400)

<400> 41  
tcacagggag gttataaaag gcagtgagtg gggagcgggg cacgcggagc cacctgagca 60  
cgaggatttg gagccccgac ggcagcggga gcggagccgg ccatgccccg ggtcgttggg 120  
tgccgaggga gctaagg atg gtg ccc ggc ccg cgt cct gcc ctc ctc ctc 170  
Met Val Pro Gly Pro Arg Pro Ala Leu Leu Leu  
1 5 10  
ctc ctc ttt ctc ctg cag gcg ttt ctc ctc tgg gat agt ccc gtt gca 218  
Leu Leu Phe Leu Leu Gln Ala Phe Leu Leu Trp Asp Ser Pro Val Ala  
15 20 25  
gcc tcc atc caa gag cag tac tgt gag agc ctg ctg ccc acc acc aac 266  
Ala Ser Ile Gln Glu Gln Tyr Cys Glu Ser Leu Leu Pro Thr Thr Asn  
30 35 40  
cac aca gga cct cag tgc aac gcc tcg gtg gac ctg att ggc acg tgc 314  
His Thr Gly Pro Gln Cys Asn Ala Ser Val Asp Leu Ile Gly Thr Cys  
45 50 55  
tgg ccc cgc agt gca gtg gga caa ctg gtg gct cgg ccc tgc ccc gag 362  
Trp Pro Arg Ser Ala Val Gly Gln Leu Val Ala Arg Pro Cys Pro Glu  
60 65 70 75  
tat ttc tac ggc gtg cgg tac aac acc aca aac aat ggc tac agg gaa 410  
Tyr Phe Tyr Gly Val Arg Tyr Asn Thr Thr Asn Asn Gly Tyr Arg Glu  
80 85 90  
tgc ctc gct aac ggg agc tgg gca gca cgg gtc aac tac tcc cag tgc 458  
Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg Val Asn Tyr Ser Gln Cys  
95 100 105  
cag gag atc ctc agt gag gag aag agg agc aag ctg cac tac cac atc 506  
Gln Glu Ile Leu Ser Glu Glu Lys Arg Ser Lys Leu His Tyr His Ile  
110 115 120  
gct gtc atc atc aac tac ctg ggg cac tgc gtc tcg ctg ggg acc ctc 554  
Ala Val Ile Ile Asn Tyr Leu Gly His Cys Val Ser Leu Gly Thr Leu  
125 130 135  
ctt gtg gcc ttc gtc ctc ttc atg cgc ctg cgg agc atc cgg tgc ttg 602  
Leu Val Ala Phe Val Leu Phe Met Arg Leu Arg Ser Ile Arg Cys Leu  
140 145 150 155  
agg aac atc atc cac tgg aac ctg atc aca gcc ttc atc cta cgc aat 650  
Arg Asn Ile Ile His Trp Asn Leu Ile Thr Ala Phe Ile Leu Arg Asn



160										165					170					
gcc	acg	tgg	ttt	gtg	gtg	cag	ctc	acg	atg	aac	cca	gag	gtg	cac	gag	698				
Ala	Thr	Trp	Phe	Val	Val	Gln	Leu	Thr	Met	Asn	Pro	Glu	Val	His	Glu					
			175					180					185							
agc	aac	gtg	gtc	tgg	tgc	cgc	ttg	gtc	act	gct	gcc	tac	aat	tac	ttc	746				
Ser	Asn	Val	Val	Trp	Cys	Arg	Leu	Val	Thr	Ala	Ala	Tyr	Asn	Tyr	Phe					
		190					195					200								
cat	gtc	acc	aac	ttc	ttc	tgg	atg	ttt	ggc	gag	ggc	tgc	tac	ctg	cac	794				
His	Val	Thr	Asn	Phe	Phe	Trp	Met	Phe	Gly	Glu	Gly	Cys	Tyr	Leu	His					
	205					210					215									
aca	gcc	atc	gtc	ctc	acc	tat	tcc	acc	gac	aag	ctc	cgc	aag	tgg	atg	842				
Thr	Ala	Ile	Val	Leu		Tyr	Ser	Thr	Asp	Lys	Leu	Arg	Lys	Trp	Met					
220					225					230					235					
ttc	atc	tgc	att	ggc	tgg	tgt	atc	ccc	ttt	ccc	atc	att	gtc	gcc	tgg	890				
Phe	Ile	Cys	Ile	Gly	Trp	Cys	Ile	Pro	Phe	Pro	Ile	Ile	Val	Ala	Trp					
				240					245					250						
gcc	atc	ggg	aag	ctg	tac	tac	gac	aac	gag	aag	tgc	tgg	ttt	ggg	aag	938				
Ala	Ile	Gly	Lys	Leu	Tyr	Tyr	Asp	Asn	Glu	Lys	Cys	Trp	Phe	Gly	Lys					
			255					260					265							
cga	gca	gga	gtt	tat	act	gac	tac	atc	tat	caa	ggt	ccc	atg	atc	ctg	986				
Arg	Ala	Gly	Val	Tyr	Thr	Asp	Tyr	Ile	Tyr	Gln	Gly	Pro	Met	Ile	Leu					
		270				275						280								
gtg	ctt	ctg	atc	aac	ttc	atc	ttt	ctg	ttc	aac	att	gtt	cgg	att	ctc	1034				
Val	Leu	Leu	Ile	Asn	Phe	Ile	Phe	Leu	Phe	Asn	Ile	Val	Arg	Ile	Leu					
	285					290					295									
atg	acc	aag	ctc	cga	gca	tca	acc	acg	tca	gag	aca	atc	cag	tac	aga	1082				
Met	Thr	Lys	Leu	Arg	Ala	Ser	Thr	Thr	Ser	Glu	Thr	Ile	Gln	Tyr	Arg					
300					305					310					315					
aaa	gca	gtc	aag	gct	acg	ctg	gtg	ctg	ctg	tcc	ttg	ctg	gga	atc	acc	1130				
Lys	Ala	Val	Lys	Ala	Thr	Leu	Val	Leu	Leu	Ser	Leu	Leu	Gly	Ile	Thr					
				320				325					330							
tac	atg	ctg	ttc	ttt	gtc	aat	ccg	ggg	gag	gat	gag	atc	tcc	agg	atc	1178				
Tyr	Met	Leu	Phe	Phe	Val	Asn	Pro	Gly	Glu	Asp	Glu	Ile	Ser	Arg	Ile					
			335					340					345							
gtc	ttc	atc	tac	ttc	aac	tcc	ttc	ctg	gag	tcc	ttc	cag	ggc	ttc	ttt	1226				
Val	Phe	Ile	Tyr	Phe	Asn	Ser	Phe	Leu	Glu	Ser	Phe	Gln	Gly	Phe	Phe					
		350				355						360								
gtc	tct	gtc	ttc	tac	tgc	ttc	ctg	aac	agc	gag	gtg	cgt	tcg	gct	gtg	1274				
Val	Ser	Val	Phe	Tyr	Cys	Phe	Leu	Asn	Ser	Glu	Val	Arg	Ser	Ala	Val					
	365					370					375									
cgg	aag	cgg	tgg	cac	cga	tgg	cag	gac	aag	cac	tcc	atc	cgc	gct	cgg	1322				
Arg	Lys	Arg	Trp	His	Arg	Trp	Gln	Asp	Lys	His	Ser	Ile	Arg	Ala	Arg					
380					385					390					395					
gtg	gct	cgg	gcc	atg	tcc	atc	ccc	acc	tcc	cca	acc	cgg	gtc	agc	ttc	1370				
Val	Ala	Arg	Ala	Met	Ser	Ile	Pro	Thr	Ser	Pro	Thr	Arg	Val	Ser	Phe					
				400				405					410							

cac agc atc aag cag tcc tca gca gtg tga ggcaggagga ggcagctgcc ga 1422  
 His Ser Ile Lys Gln Ser Ser Ala Val  
 415 420

<210> 42  
 <211> 420  
 <212> PRT  
 <213> Gallus gallus

<400> 42

Met Val Pro Gly Pro Arg Pro Ala Leu Leu Leu Leu Phe Leu Leu  
 1 5 10 15

Gln Ala Phe Leu Leu Trp Asp Ser Pro Val Ala Ala Ser Ile Gln Glu  
 20 25 30

Gln Tyr Cys Glu Ser Leu Leu Pro Thr Thr Asn His Thr Gly Pro Gln  
 35 40 45

Cys Asn Ala Ser Val Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Ala  
 50 55 60

Val Gly Gln Leu Val Ala Arg Pro Cys Pro Glu Tyr Phe Tyr Gly Val  
 65 70 75 80

Arg Tyr Asn Thr Thr Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly  
 85 90 95

Ser Trp Ala Ala Arg Val Asn Tyr Ser Gln Cys Gln Glu Ile Leu Ser  
 100 105 110

Glu Glu Lys Arg Ser Lys Leu His Tyr His Ile Ala Val Ile Ile Asn  
 115 120 125

Tyr Leu Gly His Cys Val Ser Leu Gly Thr Leu Leu Val Ala Phe Val  
 130 135 140

Leu Phe Met Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His  
 145 150 155 160

Trp Asn Leu Ile Thr Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val  
 165 170 175

Val Gln Leu Thr Met Asn Pro Glu Val His Glu Ser Asn Val Val Trp  
 180 185 190

Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe  
195 200 205

Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu  
210 215 220

Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Met Phe Ile Cys Ile Gly  
225 230 235 240

Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu  
245 250 255

Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg Ala Gly Val Tyr  
260 265 270

Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn  
275 280 285

Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg  
290 295 300

Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala  
305 310 315 320

Thr Leu Val Leu Leu Ser Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe  
325 330 335

Val Asn Pro Gly Glu Asp Glu Ile Ser Arg Ile Val Phe Ile Tyr Phe  
340 345 350

Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr  
355 360 365

Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Val Arg Lys Arg Trp His  
370 375 380

Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg Val Ala Arg Ala Met  
385 390 395 400

Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln  
405 410 415

Ser Ser Ala Val  
420

<210> 43

<211> 38  
<212> PRT  
<213> Mus musculus

<400> 43

Val Ile Leu Ser Leu Asp Val Pro Ile Gly Leu Leu Arg Ile Leu Leu  
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Glu Gln Ala Arg Tyr Lys Ala Ala Arg Asn Gln Ala Ala Thr Asn Ala  
20 25 30  
Gln Ile Leu Ala His Val  
35

<210> 44  
<211> 38  
<212> PRT  
<213> Homo sapiens

<400> 44

Ile Val Leu Ser Leu Asp Val Pro Ile Gly Leu Leu Gln Ile Leu Leu  
1 5 10 15  
Glu Gln Ala Arg Ala Arg Ala Ala Arg Glu Gln Ala Thr Thr Asn Ala  
20 25 30  
Arg Ile Leu Ala Arg Val  
35